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THE
NAUTICAL ALMANAC
AND
ASTRONOMICAL EPHEMERIS
FOR THE YEAR
1868.

PUBLISHED BY ORDER OF
THE LORDS COMMISSIONERS OF THE ADMIRALTY.

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ALPHABETICALLY ARRANGED.

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the small, the Page of the Preface; and the Arabic, the Page of the Book.

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P R E F A C E.

THE contents and arrangement of the NAUTICAL ALMANAC AND ASTRONOMICAL EPHEMERIS for the year 1868 are the same generally as those of the preceding year.

The places of the Sun are from LEVERRIER's Tables in "*Annales de l'Observatoire Impérial de Paris*," Vol. IV.

The Nutations of the Obliquity of the Ecliptic ($\Delta \omega$) and of Longitude (ΔL), have been computed according to the following formulæ :

$$\begin{aligned}\Delta \omega &= 9'' \cdot 2237 \cos \Omega - 0'' \cdot 0895 \cos 2 \Omega + 0'' \cdot 5507 \cos 2 \odot \\ \Delta L &= -17'' \cdot 2524 \sin \Omega + 0'' \cdot 2063 \sin 2 \Omega - 1'' \cdot 2691 \sin 2 \odot\end{aligned}$$

where Ω is the mean Longitude of the Moon's ascending Node, and \odot the true Longitude of the Sun. The coefficients are those of Professor PETERS.

The mean Obliquity of the Ecliptic has been taken $= 23^{\circ} 27' 23'' \cdot 26$, on January 1, 1868, and the mean annual diminution $= 0'' \cdot 476$. (LEVERRIER's Solar Tables, page 203.)

The Semidiameter of the Sun at the Earth's mean Distance $= 16' 1'' \cdot 82$, being the result of the 12 years' Observations, 1836 to 1847, made at the Royal Observatory, at Greenwich.

The Equatorial Horizontal Parallax of the Sun, at the Earth's mean Distance, has been taken = $8''.5776$, as deduced by Professor ENCKE, from the Transits of Venus in 1761 and 1769. (*Der Venusdurchgang von 1769*, &c. Gotha, 1824. Page 108.)

The Constant of Aberration = $20''.4451$. (*Struve, Sur le Coefficient Constant de l'Aberration*, p. 47.)

The Sidereal Time at Mean Noon = $\frac{\text{Sun's mean Longitude}}{15} + \text{Nutation in R.A.}$ (in time); the Sun's mean Longitude for the Paris Mean Time $0^h 9^m 20^s.63$, or Greenwich Mean Noon of any day in the nineteenth century, is supplied by LEVERRIER's Tables I., III., IV., and V.

The Sun's Geocentric Co-ordinates have been computed from the following formulæ :

$$\begin{aligned} X &= R \cos \odot \\ Y &= R \sin \odot \cos \omega - \lambda \sin 1'' \sin \omega \\ Z &= R \sin \odot \sin \omega + \lambda \sin 1'' \cos \omega \end{aligned}$$

in which R represents the Radius Vector of the Earth, \odot the Sun's *true* Longitude from the *true* equinox, ω the apparent Obliquity of the Ecliptic, and λ the Sun's Latitude. The reductions to the mean equinox of January 1 have been obtained by substituting the Sun's Longitude from the mean equinox, of January 1, 1868, and the mean Obliquity of the Ecliptic.

The Longitude, Latitude, Horizontal Parallax, Semidiameter, Right Ascension, and Declination of the Moon at noon and midnight, have been deduced from HANSEN's Tables.*

The Right Ascension and Declination have been examined by means of differences to the fourth order, and interpolated for every hour. From these have been deduced the Right Ascension and Declination at transit on each day of the year.

The Lunar Distances from the Sun have been computed from Longitude and Latitude for every six hours, examined by means of differences to the second order, and interpolated for every three hours. Those from the Planets and Stars have been computed from Right Ascension and Declination for every six hours, examined by means of differences to the second, third, and sometimes fourth order, according to the irregularity of their variation, and interpolated for every three hours.

The places of Mercury, Venus, and Mars, have been deduced from LEVERRIER's Tables in "*Annales de l'Observatoire Impérial de Paris*," Vols. V. and VI.

* Tables de la Lune, construites d'après le principe Newtonien de la gravitation universelle, par P. A. HANSEN, Directeur de l'Observatoire Ducal de Gotha. London, 1857. 4to.

and those of Jupiter, Saturn, and Uranus, from BOUVARD's new Tables,* substituting only for Table XLII. of Saturn, Professor ADAMS's correct Table given in the NAUTICAL ALMANAC for 1851, page xiv. The places of Neptune are from KOWALSKI's Tables.†

For Mercury, the Perturbations were obtained from the Tables for each fifth mean noon, and interpolated with second differences; the remainder of the calculations was performed independently for every mean noon.

For Venus, the Heliocentric Longitude, Latitude and Radius Vector, were computed for mean noon of every eighth day, and interpolated with fourth differences for each day. The Geocentric places were computed for every second day, and interpolated with second differences for each day.

For Mars, the Heliocentric Longitude, Latitude and Radius Vector, were computed for mean noon of every twelfth day, and interpolated with fourth differences for each day. The Geocentric places were computed for every second day, and interpolated with second differences for each day.

For Jupiter, Saturn, and Uranus, the Heliocentric Longitude, Latitude and Radius Vector, were computed for mean noon at intervals of thirty days, and interpolated, for each day, with second differences. The Geocentric places of Jupiter and Saturn were obtained independently for every sixth day, and interpolated for each day, with fourth differences; those of Uranus for every eighth day, and interpolated for each fourth day.

For Neptune, the Heliocentric Places were computed at intervals of thirty-two days, and Geocentric ones at intervals of eight days, and interpolated with second differences.

The Semidiameters of the Planets, at the mean distance of the Earth from the Sun, have been adopted as follow :

Mercury,	Eq. Sem.	3 ^h 34	(Leverrier's <i>Tables of Mercury</i> , page 182).
Venus,	Eq. Sem.	8 ^h 305	(Leverrier's <i>Tables of Venus</i> , page 168).
Mars,	Eq. Sem.	5 ^h 55	(Leverrier's <i>Tables of Mars</i> , page 412).
Jupiter,	Eq. Sem.	99 ^h 704	(<i>Mem. Ast. Soc.</i> , vol. iii. page 301).
Saturn,	Eq. Sem.	81 ^h 106	(<i>Ast. Nach.</i> No. 189).
Uranus,	Eq. Sem.	37 ^h 25	(Delambre's <i>Astronomy</i> , vol. ii. page 620).

* Tables Astronomiques publiées par le Bureau des Longitudes de France, contenant les Tables de Jupiter, de Saturne et d'Uranus, construites d'après la Théorie de la Mécanique Céleste : par M. A. BOUVARD. Paris, 1821. 4to.

† Recherches sur les Mouvements de Neptune, suivies des Tables de cette Planète, par M. KOWALSKI. Kasan, 1855. 8vo.

For Jupiter and Saturn, Polar Sem. = Eq. Sem. \times .927.

The Eclipses of Jupiter's Satellites have been computed from "*Tables Ecliptiques des Satellites de Jupiter, d'après la théorie de leurs attractions mutuelles et les constantes déduites des Observations.* Par le Baron DE DAMOISEAU. Publiées par le Bureau des Longitudes. Paris 1836," using $9^m 20^s.6$ for the difference of meridians.

For the first Satellite, equations 4 and 5 have been taken from the Tables for every Eclipse, and the other equations for each sixth Eclipse. For the second Satellite, equation 4 has been taken for every Eclipse, and the others for each fourth Eclipse. For the third Satellite, equation 5 has been taken for every Eclipse, and the others for each second Eclipse. For the fourth Satellite, the whole of the equations have been taken from the Tables for each Eclipse. In each case the computation has been finished by interpolating, with second differences, the sums of those equations not taken from the Tables for each Eclipse.

For the Configurations and Occultations of the Satellites, as well as the Transits of the Satellites and their Shadows over the disc of the Planet, WOOLHOUSE'S Tables in the APPENDIX to the NAUTICAL ALMANAC for 1835 have been used, with the exception of Table II. of each Satellite, which has been reconstructed to adapt it to DAMOISEAU'S New Tables.

The Elements at page 487, for determining the appearance of Saturn's Ring, have been calculated as for the NAUTICAL ALMANACS 1860-1865; the formulæ, &c. will be found in the Prefaces to those volumes.

The Mean Places for January $0^h 0^m 56^s.565$, 1868, of 84 of the 100 Fixed Stars formerly given, have been derived from a manuscript by Professor ADAMS, and the remaining 16 from the fundamental Catalogue for 1840, contained in the NAUTICAL ALMANAC for 1848, pages 436 to 441, by means of the formulæ at page xiv of the PREFACE to the *Second Edition* of the NAUTICAL ALMANAC for 1834. Of the 47 stars inserted for the first time in the NAUTICAL ALMANAC for 1857, the mean places of 43 have been derived from the Greenwich Observations of 1850 as printed, and the Observations of 1851 and 1852 as supplied in manuscript by the ASTRONOMER ROYAL. The positions of ν Orionis, h Sagittarii, ρ Capricorni, and γ Virginis have been taken from the Greenwich Twelve-year Catalogue*—the place for 1840 alone having been adopted for the latter star. The proper motions as determined by the REV. R. MAIN, in his paper on the subject, (*Mem. Roy. Ast. Soc. Vol. xix.*) or computed by similar formulæ, have

* Catalogue of 2156 Stars, formed from the Observations made during twelve years, from 1836 to 1847, at the Royal Observatory, Greenwich. London. 1849. 4to.

been included in the reductions of the mean places of the 47 additional stars to the year 1868.

The Logarithms of E, F, G, H, and the value of L, at page XIX, of each month, have been computed from the Logarithms of A, B, C, D, in page XX, by the formulæ in the introduction to the Greenwich Twelve-year Catalogue.

The Logarithms of A, B, C, D, at page XX, of each Month, have been computed agreeably to the formulæ at page 329, omitting only in the values of C and D the terms $-0.00405 \sin 2 \zeta$ and $-0.0885 \cos 2 \zeta$; and for the only Stars that can be sensibly affected by the omission, viz., the five Polar Stars, a Table of Corrections is given at pages 388 and 389.

The Table of Constants at pages 330 and 331 for facilitating the Reduction of Stars *generally*, has been computed from BESSEL's formulæ, given at page 329, using the A, B, C, D, contained in this volume.

The apparent places of 142 of the Fixed Stars have been deduced from the mean places for January $0 + 0^d.565$, 1868, using the Variables A, B, C, D, in the present Volume with Constants computed for the year 1870, similar to those for 1850 in the Catalogue of the British Association.* For the five Polar Stars the constants have been computed for 1868 and 1869, and interpolated. The corrections were computed independently for every tenth day, with the exception of those for α and δ URSE MINORIS, which were interpolated, with second differences, from computations made for every third day of the year.

A further correction of the right ascension for *daily* aberration is necessary, where extreme accuracy is required, and may be computed as follows: Let ϕ denote the latitude of the place, and δ the declination of the Star, then the correction (*in time*) for the *upper* transit is,

$$+ 0^s.0206 \cos \phi \sec \delta$$

and for the *lower* transit,

$$- 0^s.0206 \cos \phi \sec \delta$$

The Lists of Moon-Culminating Stars, and Stars liable to Occultation by the Moon, have been selected from the Catalogue of the British Association.

* The Catalogue of Stars of the British Association for the Advancement of Science; containing the Mean Right Ascensions and North Polar Distances of eight thousand three hundred and seventy-seven Fixed Stars, reduced to January 1, 1850: together with their annual precessions, secular variations, and proper motions, as well as the logarithmic constants for computing precession, aberration, and nutation. With a Preface explanatory of their Construction and Application. By the late Francis Baily, Esq. London, 1845. 4to.

The mean places of the Stars for each List were taken in order of preference, 1. From the Catalogue of the 147 Stars in this Work. 2. From AIRY'S Greenwich Twelve-Year Catalogue of 2156 Stars. 3. From the Catalogue of the British Association. The reduction of the mean to the apparent places has been performed by means of the Constants in the Catalogue of the British Association; the corrections for each star on the contiguous days being obtained by different computers for the Moon-Culminating List, and those for the Occultations by duplicate computations.

The calculations of the Solar Eclipses, the Transit of Mercury over the Sun's disc, the Elements of Occultations, and the Occultations visible at Greenwich, have been made according to the methods and formulæ given by Mr. WOOLHOUSE in the APPENDIX to the NAUTICAL ALMANAC for 1836: those relating to the Occultations wholly, and to the Eclipses and Transit of Mercury partly, in duplicate.

The positions of the Moon's Equator at page 489, used in computing the Moon's Libration, have been determined as follows:—

$$\begin{aligned} \tan A &= \frac{\cos \frac{1}{2}(\omega - I)}{\cos \frac{1}{2}(\omega + I)} \tan \frac{1}{2} \vartheta & \tan B &= \frac{\sin \frac{1}{2}(\omega - I)}{\sin \frac{1}{2}(\omega + I)} \tan \frac{1}{2} \vartheta \\ \sin \frac{1}{2} i &= \frac{\sin \frac{1}{2}(\omega - I)}{\sin B} \sin \frac{1}{2} \vartheta & \Delta &= A + B \quad \vartheta' = A - B \end{aligned}$$

where ω is the Obliquity of the Ecliptic, ϑ the mean Longitude of the Moon's ascending node + 180° (both from page 242), and I the inclination of the Moon's Equator = $1^\circ 32' 9''$ (Dr. WICHMANN *Ast. Nach.* No. 631). l_0 is from HANSEN'S Lunar Tables.

Putting $\lambda \beta \alpha' \delta'$ for the Moon's Longitude, Latitude, Right Ascension, and Declination affected with parallax, and

$$\left. \begin{aligned} \Delta \lambda &= \tan^2 \frac{1}{2} I \sin 2(\lambda - \vartheta) \\ \frac{I}{\alpha'} &= \frac{I}{\cos(\lambda - \vartheta) \sin I} \\ \tan B' &= \sin(\lambda - \vartheta) \tan I \end{aligned} \right\} \text{see table at pages 495 and 496,}$$

Libration in Latitude, $b' = B' - \beta$

Libration in Longitude, $l' = l - l_0$

$$= \lambda + \Delta \lambda - \frac{b'}{\alpha'} - l_0$$

Angle which the meridian of the middle of the Moon's Disc makes with the circle of Declination, taken positive when the northern part of the circle of Declination is to the west of the Moon's meridian.

$$\begin{aligned} \sin C &= - \sin i \frac{\cos(l - \vartheta + \Delta)}{\cos \delta'} \\ &= - \sin i \frac{\cos(\alpha' - \vartheta')}{\cos \delta'} \end{aligned}$$

The above is in all respects similar to what is published annually in the BERLINER ASTRONOMISCHES JAHRBUCH, except that the value of I is there taken $1^\circ 28' 47''$.

The Tides at London Bridge for the year 1868 have been computed from tables in "An Elementary Treatise on the Tides. By J. W. LUBBOCK, Esq." (London, 1839.)

The Tables for finding the Latitude of a place by Observations of the Pole Star (α URSÆ MINORIS), at any hour of the day, are founded on the following formula:

$$l = a - p \cos h + \frac{1}{2} \sin 1'' (p \sin h)^2 \tan a$$

where l denotes the latitude

a — the true altitude of the Star

p — the apparent polar distance, expressed in seconds of arc

h — the hour angle of the Star = $S - \alpha$; S being the sidereal time of observation, and α the right ascension of the Star.

Table I. contains the value of the *second* term ($p \cos h$) or the *first correction*; assuming, as *mean* values, $p = 84' 0''$, and $\alpha = 17^\circ 30'$.

Table II. contains the value of the *third* term ($\frac{1}{2} \sin 1'' (p \sin h)^2 \tan a$) or the *second correction*, using the same *mean* quantities as in Table I.

Table III., which is *special* for the year 1868, and depends upon the difference between the true and assumed values of p and α , contains the *third* correction increased by $1'$ for the purpose of rendering the quantities additive.

A fourth term ($-\frac{1}{2} \sin^2 1'' (p \cos h) (p \sin h)^2$) is omitted, its greatest value being less than half a second.

In the construction of this Ephemeris generally, duplicate computations have been made where necessary, and isolated calculations performed to guard against systematic error; all results admitting of such test have been finally examined by means of differences, and every precaution taken to secure accuracy in the printing.

J. R. HIND,
Superintendent.

Nautical Almanac Office,
3, Verulam Buildings, Gray's Inn, London.
August 10, 1864.

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FIXED AND MOVEABLE FESTIVALS, ANNIVERSARIES, &c. &c.

Epiphany - - - - -	Jan. 6	<i>Ascension Day—Holy Thursday</i>	May 21
<i>Septuagesima Sunday</i> - -	Feb. 9	Birth of Q. Victoria - - - -	24
<i>Quinquagesima—Shrove Sunday</i>	23	<i>Pentecost—Whit Sunday</i> - - -	31
<i>Ash Wednesday</i> - - - - -	26	<i>Trinity Sunday</i> - - - -	June 7
St. David - - - - -	Mar. 1	<i>Corpus Christi</i> - - - - -	11
<i>Quadragesima—1st Sun. in Lent</i>	1	Accession of Q. Victoria - - -	20
St. Patrick - - - - -	17	Proclamation - - - - -	21
Annunciation—Lady Day - -	25	St. John Bapt.—Midsum. Day - -	24
<i>Palm Sunday</i> - - - - -	April 5	St. Michael—Michaelmas Day	Sept. 29
<i>Good Friday</i> - - - - -	10	Birth of Prince of Wales - -	Nov. 9
EASTER SUNDAY - - - -	12	<i>1st Sunday in Advent</i> - - - -	29
<i>Low Sunday</i> - - - - -	19	St. Andrew - - - - -	30
St. George - - - - -	23	St. Thomas - - - - -	Dec. 21
<i>Rogation Sunday</i> - - - -	May 17	Christmas Day - - - - -	25

The Year 5629 of the Jewish Era commences on September 17, 1868.

Ramadân (Month of Abstinence observed by the Turks) commences on
December 16, 1868.

The Year 1285 of the Mohammedan Era commences on April 24, 1868.

EXPLANATION OF ASTRONOMICAL SYMBOLS AND ABBREVIATIONS.

☉ The Sun.	☾ Circe.	☾ Clytie.
☾ The Moon.	☾ Leucothea.	☾ Galatea.
☿ Mercury.	☾ Atalanta.	☾ Eurydice.
♀ Venus.	☾ Fides.	☾ Freia.
♁ or ♂ The Earth.	☾ Leda.	☾ Frigga.
♂ Mars.	☾ Lætitia.	☾ Diana.
♁ Ceres.	☾ Harmonia.	☾ Eurynome.
♀ Pallas.	☾ Daphne	♃ Jupiter.
♁ Juno.	☾ Isis.	♄ Saturn.
♁ Vesta.	☾ Ariadne.	♅ Uranus.
♁ Astræa.	☾ Nysa.	♆ Neptune.
♁ Hebe.	☾ Eugenia.	♌ Conjunction.
♁ Iris.	☾ Hestia.	☐ Quadrature.
♁ Flora.	☾ Aglaia.	♍ Opposition.
♁ Metis.	☾ Doris.	♎ Ascending Node.
♁ Hygeia.	☾ Pales.	♏ Descending Node.
♁ Parthenope.	☾ Virginia.	N. North. S. South.
♁ Victoria.	☾ Nemausa.	E. East. W. West.
♁ Egeria.	☾ Europa.	° Degrees.
♁ Irene.	☾ Calypso.	' Minutes of Arc.
♁ Eunomia.	☾ Alexandra.	" Seconds of Arc.
♁ Psyche.	☾ Pandora.	h Hours.
♁ Thetis.	☾ Melete.	m Minutes of Time.
♁ Melpomene.	☾ Mnemosyne.	s Seconds of Time.
♁ Fortuna.	☾ Concordia.	o. ♈ Aries - - 0
♁ Massilia.	☾ Olympia.	I. ♉ Taurus - - 30
♁ Lutetia.	☾ Écho.	II. ♊ Gemini - - 60
♁ Calliope.	☾ Danaë	III. ♋ Cancer - - 90
♁ Thalia.	☾ Erato.	IV. ♌ Leo - - - 120
♁ Themis.	☾ Ausonia.	V. ♍ Virgo - - 150
♁ Phoebe.	☾ Angelina.	VI. ♎ Libra - - 180
♁ Proserpine.	☾ Maximiliana.	VII. ♏ Scorpio - 210
♁ Euterpe.	☾ Maia.	VIII. ♐ Sagittarius 240
♁ Bellona.	☾ Asia.	IX. ♑ Capricornus 270
♁ Amphitrite.	☾ Leto.	X. ♒ Aquarius - 300
♁ Urania.	☾ Hesperia.	XI. ♓ Pisces - - 330
♁ Euphrosyne.	☾ Panopea.	
♁ Pomona.	☾ Niobe.	
♁ Polyhymnia.	☾ Feronia.	

LAW TERMS, 1868

As settled by Statutes

11 GEO. IV. and 1 WILL. IV. cap. 70, s. 6. (Passed July 23, 1830.)

1 WILL. IV. - - - - - cap. 3, s. 2. (Passed Dec. 23, 1830.)

HILARY TERM - - - - *Begins* Jan. 11 - - *Ends* Jan. 31

EASTER - - - - - Apr. 15 - - - - May 8

TRINITY - - - - - May 22 - - - - June 12

MICHAELMAS - - - - - Nov. 2 - - - - Nov. 25

For Returns see Statute 1 WILL. IV. cap. 3, s. 2. (Passed Dec. 23, 1830.)

UNIVERSITY TERMS, 1868.

Terms.	OXFORD.		CAMBRIDGE.		
	<i>Begins.</i>	<i>Ends.</i>	<i>Begins.</i>	<i>Divides.</i>	<i>Ends.</i>
Lent - - - -	Jan. 14	Apr. 4	Jan. 13	Feb. 22, Midnight.	Apr. 3
Easter - - -	Apr. 15	May 29	Apr. 17	May 22, Noon.	June 26
Trinity - - -	May 30	July 11	- - -	- - - - -	- - -
Michaelmas -	Oct. 10	Dec. 17	Oct. 1	Nov. 8, Noon.	Dec. 16
	<i>The Act, July 7.</i>		<i>The Commencement, June 23.</i>		

ERRATA.

(Continued from page xv of the *Nautical Almanac* for 1867.)

NAUTICAL ALMANAC FOR THE YEAR 1863.

Page 325. ♄ Bootis, Declination

for N. 27 29 12'21 *read* N. 27 39 12'21.

NAUTICAL ALMANAC FOR THE YEAR 1867.

Page 432. Sixth line from the bottom, *for* 33 55'9 *read* 33 35'9 (in some copies).

NAUTICAL ALMANAC FOR THE YEAR 1868.

Page 77. Lunar Dist. from α Aquilæ, April 11, at XVIII^h
for 42 43 33 *read* 42 43 53 (in some copies).

111. Right Ascension, June 23, at 2^h
for 9 2 53'90 *read* 9 2 53'99.

254. ^{Apparent} Declination. April 22
for 1 54 31'1 *read* 1 54 34'1.

E P H E M E R I S
FOR THE YEAR
1868,
FOR THE MERIDIAN
OF THE
ROYAL OBSERVATORY AT GREENWICH.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be added to Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
		^h ^m ^s	^s	[°] ['] ["]	["]	^m ^s	^m ^s	^s
Wed.	1	18 45 20.23	11.049	S. 23 2 41.2	11.96	1 11.09	3 36.63	1.189
Thur.	2	18 49 45.23	11.034	22 57 40.4	13.11	1 11.04	4 5.01	1.174
Frid.	3	18 54 9.86	11.018	22 52 12.1	14.25	1 10.99	4 33.00	1.158
Sat.	4	18 58 34.09	11.001	22 46 16.5	15.38	1 10.94	5 0.60	1.141
Sun.	5	19 2 57.90	10.983	22 39 53.7	16.51	1 10.89	5 27.78	1.123
Mon.	6	19 7 21.26	10.964	22 33 4.0	17.63	1 10.83	5 54.51	1.104
Tues.	7	19 11 44.15	10.943	22 25 47.6	18.74	1 10.76	6 20.76	1.084
Wed.	8	19 16 6.53	10.922	22 18 4.7	19.84	1 10.69	6 46.52	1.062
Thur.	9	19 20 28.39	10.900	22 9 55.5	20.93	1 10.62	7 11.75	1.040
Frid.	10	19 24 49.69	10.876	22 1 20.3	22.01	1 10.55	7 36.44	1.017
Sat.	11	19 29 10.43	10.852	21 52 19.2	23.07	1 10.47	8 0.56	0.993
Sun.	12	19 33 30.59	10.827	21 42 52.7	24.13	1 10.39	8 24.09	0.968
Mon.	13	19 37 50.15	10.802	21 33 0.8	25.18	1 10.31	8 47.03	0.943
Tues.	14	19 42 9.09	10.776	21 22 43.9	26.22	1 10.22	9 9.36	0.917
Wed.	15	19 46 27.40	10.749	21 12 2.3	27.24	1 10.13	9 31.05	0.890
Thur.	16	19 50 45.06	10.722	21 0 56.2	28.25	1 10.03	9 52.09	0.863
Frid.	17	19 55 2.06	10.694	20 49 26.1	29.25	1 9.94	10 12.47	0.835
Sat.	18	19 59 18.37	10.665	20 37 32.1	30.23	1 9.84	10 32.17	0.806
Sun.	19	20 3 33.97	10.635	20 25 14.7	31.21	1 9.74	10 51.17	0.777
Mon.	20	20 7 48.85	10.605	20 12 34.1	32.16	1 9.63	11 9.45	0.747
Tues.	21	20 12 3.01	10.574	19 59 30.8	33.10	1 9.53	11 27.00	0.716
Wed.	22	20 16 16.41	10.542	19 46 5.1	34.03	1 9.42	11 43.80	0.684
Thur.	23	20 20 29.04	10.510	19 32 17.3	34.94	1 9.32	11 59.83	0.652
Frid.	24	20 24 40.89	10.477	19 18 7.9	35.84	1 9.21	12 15.08	0.619
Sat.	25	20 28 51.94	10.444	19 3 37.2	36.72	1 9.10	12 29.53	0.585
Sun.	26	20 33 2.18	10.410	18 48 45.5	37.58	1 8.99	12 43.18	0.552
Mon.	27	20 37 11.61	10.376	18 33 33.4	38.42	1 8.87	12 56.02	0.518
Tues.	28	20 41 20.21	10.341	18 18 1.2	39.26	1 8.76	13 8.04	0.484
Wed.	29	20 45 27.98	10.306	18 2 9.1	40.07	1 8.65	13 19.23	0.449
Thur.	30	20 49 34.92	10.271	17 45 57.8	40.86	1 8.54	13 29.58	0.414
Frid.	31	20 53 41.02	10.236	17 29 27.6	41.65	1 8.42	13 39.10	0.379
Sat.	32	20 57 46.28	10.201	S. 17 12 38.8	42.41	1 8.31	13 47.77	0.344

*Mean Time of the Semidiameter passing may be found by subtracting 0^m.19 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be subtracted from Mean Time.	Sidereal Time.
		Apparent Right Ascension.	Apparent Declination.	Semidiam.*		
		^h ^m ^s	[°] ['] ["]	['] ["]	^m ^s	^h ^m ^s
Wed.	1	18 45 19.57	S. 23 2 41.9	16' 18.2	3 36.57	18 41 43.00
Thur.	2	18 49 44.48	22 57 41.3	16' 18.2	4 4.93	18 45 39.55
Frid.	3	18 54 9.02	22 52 13.2	16' 18.2	4 32.91	18 49 36.11
Sat.	4	18 58 33.17	22 46 17.7	16' 18.2	5 0.50	18 53 32.67
Sun.	5	19 2 56.90	22 39 55.2	16' 18.2	5 27.68	18 57 29.22
Mon.	6	19 7 20.18	22 33 5.7	16' 18.2	5 54.40	19 1 25.73
Tues.	7	19 11 42.99	22 25 49.6	16' 18.2	6 20.65	19 5 22.34
Wed.	8	19 16 5.30	22 18 6.9	16' 18.1	6 46.40	19 9 18.90
Thur.	9	19 20 27.08	22 9 58.0	16' 18.1	7 11.63	19 13 15.45
Frid.	10	19 24 48.31	22 1 23.1	16' 18.1	7 36.31	19 17 12.00
Sat.	11	19 29 8.98	21 52 22.3	16' 18.0	8 0.42	19 21 8.56
Sun.	12	19 33 29.07	21 42 56.0	16' 18.0	8 23.95	19 25 5.12
Mon.	13	19 37 48.57	21 33 4.5	16' 17.9	8 46.89	19 29 1.68
Tues.	14	19 42 7.45	21 22 47.9	16' 17.8	9 9.22	19 32 58.23
Wed.	15	19 46 25.70	21 12 6.6	16' 17.8	9 30.91	19 36 54.79
Thur.	16	19 50 43.30	21 1 0.9	16' 17.7	9 51.95	19 40 51.35
Frid.	17	19 55 0.24	20 49 31.1	16' 17.6	10 12.33	19 44 47.91
Sat.	18	19 59 16.49	20 37 37.5	16' 17.5	10 32.03	19 48 44.46
Sun.	19	20 3 32.05	20 25 20.4	16' 17.4	10 51.03	19 52 41.02
Mon.	20	20 7 46.89	20 12 40.1	16' 17.3	11 9.32	19 56 37.57
Tues.	21	20 12 1.00	19 59 37.1	16' 17.2	11 26.87	20 0 34.13
Wed.	22	20 16 14.35	19 46 11.7	16' 17.1	11 43.67	20 4 30.68
Thur.	23	20 20 26.94	19 32 24.3	16' 17.0	11 59.70	20 8 27.24
Frid.	24	20 24 38.75	19 18 15.2	16' 16.9	12 14.95	20 12 23.80
Sat.	25	20 28 49.76	19 3 44.8	16' 16.8	12 29.41	20 16 20.35
Sun.	26	20 32 59.97	18 48 53.5	16' 16.7	12 43.06	20 20 16.91
Mon.	27	20 37 9.37	18 33 41.7	16' 16.6	12 55.90	20 24 13.47
Tues.	28	20 41 17.95	18 18 9.7	16' 16.4	13 7.93	20 28 10.02
Wed.	29	20 45 25.70	18 2 18.0	16' 16.3	13 19.13	20 32 6.57
Thur.	30	20 49 32.61	17 46 7.0	16' 16.2	13 29.49	20 36 3.12
Frid.	31	20 53 38.69	17 29 37.0	16' 16.0	13 39.01	20 39 59.68
Sat.	32	20 57 43.93	S. 17 12 48.5	16' 15.9	13 47.69	20 43 56.24

* The Semidiameter for Apparent Noon may be assumed the same as that for Mean Noon.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	280 25 0.1	S. 0.33	9.9926634	15 4.5	15 9.6	55 13.7	55 32.6
2	281 26 10.1	0.44	9.9926607	15 15.4	15 21.7	55 53.6	56 16.7
3	282 27 19.8	0.55	9.9926603	15 28.5	15 35.8	56 41.7	57 8.4
4	283 28 29.1	0.64	9.9926622	15 43.4	15 51.3	57 36.4	58 5.3
5	284 29 38.1	0.70	9.9926665	15 59.3	16 7.3	58 34.7	59 3.9
6	285 30 46.8	0.74	9.9926733	16 15.1	16 22.4	59 32.4	59 59.4
7	286 31 55.0	0.75	9.9926829	16 29.2	16 35.1	60 24.1	60 45.8
8	287 33 2.8	0.72	9.9926953	16 40.0	16 43.7	61 3.7	61 17.4
9	288 34 10.3	0.64	9.9927107	16 46.1	16 47.1	61 26.2	61 29.9
10	289 35 17.4	0.55	9.9927292	16 46.7	16 44.8	61 28.3	61 21.5
11	290 36 24.2	0.42	9.9927506	16 41.6	16 37.2	61 9.8	60 53.6
12	291 37 30.8	0.29	9.9927746	16 31.7	16 25.4	60 33.5	60 10.2
13	292 38 37.1	0.15	9.9928015	16 18.3	16 10.8	59 44.4	59 16.9
14	293 39 43.1	S. 0.01	9.9928311	16 3.1	15 55.2	58 48.4	58 19.5
15	294 40 49.0	N. 0.11	9.9928631	15 47.4	15 39.8	57 50.9	57 23.0
16	295 41 54.7	0.22	9.9928976	15 32.5	15 25.6	56 56.3	56 31.1
17	296 43 0.1	0.30	9.9929342	15 19.1	15 13.3	56 7.5	55 45.9
18	297 44 5.3	0.35	9.9929730	15 7.9	15 3.1	55 26.3	55 8.7
19	298 45 10.2	0.38	9.9930137	14 58.9	14 55.2	54 53.2	54 39.7
20	299 46 14.7	0.38	9.9930562	14 52.0	14 49.4	54 28.2	54 18.6
21	300 47 18.7	0.36	9.9931003	14 47.3	14 45.6	54 10.8	54 4.6
22	301 48 22.1	0.32	9.9931462	14 44.4	14 43.6	54 0.2	53 57.2
23	302 49 24.9	0.25	9.9931938	14 43.2	14 43.1	53 55.6	53 55.5
24	303 50 26.9	0.17	9.9932428	14 43.4	14 44.1	53 56.6	53 59.0
25	304 51 28.0	N. 0.08	9.9932934	14 45.1	14 46.4	54 2.6	54 7.4
26	305 52 28.2	S. 0.03	9.9933456	14 48.1	14 50.1	54 13.6	54 21.0
27	306 53 27.4	0.14	9.9933993	14 52.5	14 55.2	54 29.7	54 39.8
28	307 54 25.5	0.26	9.9934546	14 58.4	15 2.0	54 51.4	55 4.5
29	308 55 22.3	0.37	9.9935113	15 6.0	15 10.4	55 19.2	55 35.5
30	309 56 18.0	0.48	9.9935697	15 15.3	15 20.6	55 53.4	56 12.9
31	310 57 12.4	0.58	9.9936298	15 26.4	15 32.5	56 34.0	56 56.6
32	311 58 5.5	S. 0.66	9.9936917	15 39.1	15 45.9	57 20.5	57 45.5

MEAN TIME.

THE MOON'S

		THE MOON'S							
Day of the Week.	Day of the Month.	Longitude.		Latitude.		Age.	Meridian		
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.		
Wed.	1	35 ⁰ 16' 36".9	357 ⁰ 25' 45".5	S. 1 ⁰ 18' 42".7	S. 1 ⁰ 50' 12".2	6.5	4 ^h 57 ^m .2		
Thur.	2	3 39' 23".6	9 58' 8".8	2 20' 46".9	2 50' 4".3	7.5	5 41.9		
Frid.	3	16 22' 37".9	22 53' 24".2	3 17' 40".5	3 43' 10".4	8.5	6 28.1		
Sat.	4	29 30' 57".8	36 15' 42".2	4 6' 8".1	4 26' 6".5	9.5	7 16.6		
Sun.	5	43 7' 54".3	50 7' 41".0	4 42' 38".2	4 55' 16".8	10.5	8 8.3		
Mon.	6	57 14' 58".1	64 29' 28".8	5 3' 37".0	5 7' 16".7	11.5	9 3.8		
Tues.	7	71 50' 42".9	79 17' 56".3	5 5' 57".9	4 59' 28".7	12.5	10 3.0		
Wed.	8	86 50' 11".3	94 26' 19".3	4 47' 44".9	4 30' 50".7	13.5	11 5.1		
Thur.	9	102 5' 2".0	109 44' 55".8	4 8' 59".9	3 42' 35".4	14.5	12 8.4		
Frid.	10	117 24' 35".1	125 2' 36".4	3 12' 9".0	2 38' 19".8	15.5	13 10.6		
Sat.	11	132 37' 41".7	140 8' 41".9	2 1' 51".8	1 23' 32".9	16.5	14 10.4		
Sun.	12	147 34' 38".8	154 54' 46".8	S. 0 44' 11".0	S. 0 4' 32".9	17.5	15 6.7		
Mon.	13	162 8' 32".8	169 15' 36".2	N. 0 34' 37".5	N. 1 12' 40".9	18.5	15 59.7		
Tues.	14	176 15' 48".0	183 9' 9".3	1 49' 2".8	2 23' 14".1	19.5	16 50.0		
Wed.	15	189 55' 49".4	196 36' 4".8	2 54' 50".9	3 23' 34".1	20.5	17 38.4		
Thur.	16	203 10' 17".0	209 38' 51".2	3 49' 9".0	4 11' 24".6	21.5	18 25.6		
Frid.	17	216 2' 15".3	222 20' 57".9	4 30' 13".3	4 45' 30".0	22.5	19 12.3		
Sat.	18	228 35' 28".6	234 46' 16".0	4 57' 12".1	5 5' 18".7	23.5	19 59.1		
Sun.	19	240 53' 48".5	246 58' 32".1	5 9' 51".1	5 10' 50".8	24.5	20 46.2		
Mon.	20	253 0' 52".2	259 1' 11".5	5 8' 21".7	5 2' 29".3	25.5	21 33.7		
Tues.	21	264 59' 51".1	270 57' 10".3	4 53' 19".8	4 41' 0".5	26.5	22 21.4		
Wed.	22	276 53' 26".6	282 48' 56".2	4 25' 40".3	4 7' 29".5	27.5	23 8.9		
Thur.	23	288 43' 53".8	294 38' 33".5	3 46' 39".1	3 23' 22".2	28.5	23 55.8		
Frid.	24	300 33' 8".8	306 27' 53".0	2 57' 52".8	2 30' 25".8	29.5	6		
Sat.	25	312 22' 59".6	318 18' 42".7	2 1' 17".5	1 30' 45".2	0.7	0 42.0		
Sun.	26	324 15' 17".4	330 13' 0".0	N. 0 59' 7".1	N. 0 26' 42".1	1.7	1 27.3		
Mon.	27	336 12' 8".1	342 13' 0".9	S. 0 6' 10".5	S. 0 39' 10".2	2.7	2 11.7		
Tues.	28	348 15' 59".7	354 21' 27".0	1 11' 56".6	1 44' 8".4	3.7	2 55.8		
Wed.	29	0 29' 47".8	6 41' 27".4	2 15' 24".6	2 45' 23".2	4.7	3 39.9		
Thur.	30	12 56' 53".7	19 16' 33".7	3 13' 42".2	3 39' 59".0	5.7	4 24.7		
Frid.	31	25 40' 55".4	32 10' 25".5	4 3' 51".1	4 24' 55".7	6.7	5 11.0		
Sat.	32	38 45' 28".8	45 26' 27".3	S. 4 42' 50".2	S. 4 57' 12".2	7.7	5 59.7		

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 1.				FRIDAY 3.			
0	h m s	° ' "	"	0	h m s	° ' "	"
0	23 30 1 57	S. 4 39 58 0	96 34	0	1 5 25 46	N. 3 24 1 9	102 83
1	23 31 58 57	4 30 19 1	96 63	1	1 7 28 33	3 34 18 8	102 80
2	23 33 55 62	4 20 38 5	96 91	2	1 9 31 40	3 44 35 5	102 76
3	23 35 52 72	4 10 56 2	97 18	3	1 11 34 68	3 54 51 9	102 71
4	23 37 49 88	4 1 12 4	97 43	4	1 13 38 17	4 5 8 0	102 65
5	23 39 47 09	3 51 27 0	97 69	5	1 15 41 88	4 15 23 7	102 58
6	23 41 44 36	3 41 40 1	97 94	6	1 17 45 80	4 25 39 0	102 51
7	23 43 41 70	3 31 51 7	98 18	7	1 19 49 94	4 35 53 8	102 43
8	23 45 39 10	3 22 1 9	98 42	8	1 21 54 31	4 46 8 1	102 33
9	23 47 36 57	3 12 10 7	98 66	9	1 23 58 91	4 56 21 8	102 23
10	23 49 34 11	3 2 18 0	98 89	10	1 26 3 74	5 6 34 9	102 12
11	23 51 31 73	2 52 24 0	99 11	11	1 28 8 80	5 16 47 3	102 01
12	23 53 29 42	2 42 28 7	99 32	12	1 30 14 10	5 26 59 0	101 88
13	23 55 27 19	2 32 32 1	99 53	13	1 32 19 64	5 37 9 9	101 74
14	23 57 25 05	2 22 34 3	99 73	14	1 34 25 43	5 47 19 9	101 60
15	23 59 23 00	2 12 35 3	99 93	15	1 36 31 47	5 57 29 1	101 45
16	0 1 21 03	2 2 35 1	100 13	16	1 38 37 75	6 7 37 3	101 28
17	0 3 19 16	1 52 33 7	100 31	17	1 40 44 29	6 17 44 5	101 11
18	0 5 17 39	1 42 31 3	100 49	18	1 42 51 09	6 27 50 6	100 93
19	0 7 15 71	1 32 27 8	100 67	19	1 44 58 15	6 37 55 6	100 73
20	0 9 14 14	1 22 23 2	100 84	20	1 47 5 48	6 47 59 4	100 53
21	0 11 12 68	1 12 17 7	100 99	21	1 49 13 07	6 58 2 0	100 32
22	0 13 11 32	1 2 11 3	101 15	22	1 51 20 93	7 8 3 3	100 11
23	0 15 10 08	S. 0 52 3 9	101 31	23	1 53 29 07	N. 7 18 3 3	99 88
THURSDAY 2.				SATURDAY 4.			
0	0 17 8 95	S. 0 41 55 6	101 45	0	1 55 37 49	N. 7 28 1 8	99 63
1	0 19 7 94	0 31 46 5	101 58	1	1 57 46 18	7 37 58 9	99 38
2	0 21 7 06	0 21 36 6	101 71	2	1 59 55 16	7 47 54 4	99 12
3	0 23 6 30	0 11 26 0	101 83	3	2 2 4 42	7 57 48 3	98 85
4	0 25 5 67	S. 0 1 14 6	101 96	4	2 4 13 97	8 7 40 6	98 57
5	0 27 5 17	N. 0 8 57 5	102 07	5	2 6 23 81	8 17 31 2	98 28
6	0 29 4 81	0 19 10 2	102 17	6	2 8 33 95	8 27 20 0	97 98
7	0 31 4 59	0 29 23 5	102 27	7	2 10 44 39	8 37 6 9	97 67
8	0 33 4 51	0 39 37 4	102 36	8	2 12 55 12	8 46 52 0	97 35
9	0 35 4 58	0 49 51 8	102 44	9	2 15 6 16	8 56 35 1	97 02
10	0 37 4 80	1 0 6 7	102 52	10	2 17 17 51	9 6 16 2	96 68
11	0 39 5 17	1 10 22 1	102 59	11	2 19 29 17	9 15 55 2	96 33
12	0 41 5 70	1 20 37 8	102 65	12	2 21 41 14	9 25 32 1	95 96
13	0 43 6 39	1 30 53 9	102 71	13	2 23 53 42	9 35 6 7	95 58
14	0 45 7 24	1 41 10 3	102 76	14	2 26 6 02	9 44 39 0	95 19
15	0 47 8 25	1 51 27 0	102 80	15	2 28 18 94	9 54 9 0	94 79
16	0 49 9 44	2 1 43 9	102 83	16	2 30 32 19	10 3 36 5	94 38
17	0 51 10 80	2 12 1 0	102 86	17	2 32 45 75	10 13 1 5	93 96
18	0 53 12 33	2 22 18 2	102 88	18	2 34 59 64	10 22 24 0	93 53
19	0 55 14 05	2 32 35 5	102 88	19	2 37 13 87	10 31 43 8	93 08
20	0 57 15 95	2 42 52 8	102 89	20	2 39 28 42	10 41 0 9	92 62
21	0 59 18 04	2 53 10 2	102 89	21	2 41 43 31	10 50 15 2	92 15
22	1 1 20 32	3 3 27 5	102 88	22	2 43 58 54	10 59 26 6	91 66
23	1 3 22 79	3 13 44 8	102 86	23	2 46 14 10	11 8 35 1	91 17
24	1 5 25 46	N. 3 24 1 9	102 83	24	2 48 30 01	N. 11 17 40 6	90 66

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SUNDAY 5.				TUESDAY 7.			
0	2 48 30.01	N. 11 17 40.6	90.66	0	4 44 10.84	N. 17 10 1.5	51.08
1	2 50 46.26	11 26 43.0	90.14	1	4 46 43.93	17 15 4.6	49.93
2	2 53 2.85	11 35 42.3	89.62	2	4 49 17.34	17 20 0.7	48.77
3	2 55 19.79	11 44 38.4	89.08	3	4 51 51.05	17 24 49.9	47.61
4	2 57 37.07	11 53 31.2	88.52	4	4 54 25.06	17 29 32.1	46.43
5	2 59 54.71	12 2 20.6	87.94	5	4 56 59.38	17 34 7.1	45.23
6	3 2 12.69	12 11 6.5	87.36	6	4 59 33.99	17 38 34.9	44.03
7	3 4 31.03	12 19 48.9	86.77	7	5 2 8.88	17 42 55.5	42.82
8	3 6 49.72	12 28 27.7	86.17	8	5 4 44.06	17 47 8.8	41.61
9	3 9 8.76	12 37 2.9	85.55	9	5 7 19.53	17 51 14.8	40.38
10	3 11 28.16	12 45 34.3	84.92	10	5 9 55.28	17 55 13.3	39.12
11	3 13 47.92	12 54 1.9	84.27	11	5 12 31.29	17 59 4.2	37.86
12	3 16 8.03	13 2 25.5	83.61	12	5 15 7.56	18 2 47.6	36.60
13	3 18 28.51	13 10 45.2	82.94	13	5 17 44.10	18 6 23.4	35.32
14	3 20 49.34	13 19 0.8	82.26	14	5 20 20.89	18 9 51.4	34.03
15	3 23 10.54	13 27 12.3	81.56	15	5 22 57.94	18 13 11.7	32.74
16	3 25 32.09	13 35 19.5	80.84	16	5 25 35.23	18 16 24.3	31.44
17	3 27 54.01	13 43 22.4	80.12	17	5 28 12.75	18 19 29.0	30.12
18	3 30 16.30	13 51 21.0	79.39	18	5 30 50.51	18 22 25.7	28.79
19	3 32 38.94	13 59 15.1	78.64	19	5 33 28.49	18 25 14.5	27.46
20	3 35 1.95	14 7 4.7	77.87	20	5 36 6.69	18 27 55.3	26.13
21	3 37 25.32	14 14 49.6	77.09	21	5 38 45.11	18 30 28.0	24.78
22	3 39 49.06	14 22 29.8	76.31	22	5 41 23.73	18 32 52.6	23.42
23	3 42 13.16	N. 14 30 5.3	75.51	23	5 44 2.55	N. 18 35 9.1	22.06
MONDAY 6.				WEDNESDAY 8.			
0	3 44 37.62	N. 14 37 35.9	74.68	0	5 46 41.57	N. 18 37 17.4	20.69
1	3 47 2.45	14 45 1.5	73.85	1	5 49 20.78	18 39 17.4	19.31
2	3 49 27.63	14 52 22.1	73.01	2	5 52 0.17	18 41 9.2	17.93
3	3 51 53.18	14 59 37.6	72.15	3	5 54 39.73	18 42 52.6	16.54
4	3 54 19.10	15 6 47.9	71.28	4	5 57 19.46	18 44 27.7	15.15
5	3 56 45.37	15 13 53.0	70.40	5	5 59 59.34	18 45 54.4	13.75
6	3 59 12.00	15 20 52.7	69.49	6	6 2 39.38	18 47 12.7	12.34
7	4 1 38.98	15 27 46.9	68.58	7	6 5 19.57	18 48 22.5	10.93
8	4 4 6.33	15 34 35.6	67.66	8	6 7 59.89	18 49 23.8	9.51
9	4 6 34.03	15 41 18.8	66.73	9	6 10 40.34	18 50 16.6	8.09
10	4 9 2.08	15 47 56.3	65.77	10	6 13 20.92	18 51 0.9	6.67
11	4 11 30.48	15 54 28.0	64.80	11	6 16 1.61	18 51 36.6	5.24
12	4 13 59.24	16 0 53.9	63.82	12	6 18 42.41	18 52 3.8	3.81
13	4 16 28.35	16 7 13.9	62.83	13	6 21 23.31	18 52 22.3	2.37
14	4 18 57.80	16 13 27.9	61.83	14	6 24 4.30	18 52 32.2	0.93
15	4 21 27.60	16 19 35.8	60.81	15	6 26 45.38	18 52 33.5	0.51
16	4 23 57.74	16 25 37.6	59.78	16	6 29 26.53	18 52 26.1	1.96
17	4 26 28.21	16 31 33.2	58.74	17	6 32 7.75	18 52 10.0	3.40
18	4 28 59.03	16 37 22.5	57.68	18	6 34 49.03	18 51 45.3	4.83
19	4 31 30.18	16 43 5.4	56.61	19	6 37 30.36	18 51 12.0	6.28
20	4 34 1.66	16 48 41.8	55.53	20	6 40 11.74	18 50 29.9	7.73
21	4 36 33.47	16 54 11.7	54.43	21	6 42 53.16	18 49 39.2	9.18
22	4 39 5.61	16 59 35.0	53.32	22	6 45 34.60	18 48 39.7	10.63
23	4 41 38.07	17 4 51.6	52.21	23	6 48 16.07	18 47 31.6	12.07
24	4 44 10.84	N. 17 10 1.5	51.08	24	6 50 57.55	N. 18 46 14.8	13.52

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 9.				SATURDAY 11.			
0	^h 6 ^m 50 ^s 57.55	N. 18° 46' 14".8	13".52	0	^h 8 ^m 58 ^s 0.73	N. 15° 4' 43".1	75".34
1	6 53 39.04	18 44 49.3	14.97	1	9 0 34.35	14 57 8.0	76.36
2	6 56 20.52	18 43 15.2	16.41	2	9 3 7.68	14 49 26.8	77.36
3	6 59 1.99	18 41 32.4	17.85	3	9 5 40.71	14 41 39.7	78.34
4	7 1 43.45	18 39 41.0	19.28	4	9 8 13.45	14 33 46.7	79.31
5	7 4 24.88	18 37 41.0	20.72	5	9 10 45.89	14 25 47.9	80.28
6	7 7 6.28	18 35 32.4	22.15	6	9 13 18.03	14 17 43.3	81.23
7	7 9 47.63	18 33 15.2	23.58	7	9 15 49.86	14 9 33.1	82.16
8	7 12 28.93	18 30 49.4	25.01	8	9 18 21.39	14 1 17.4	83.08
9	7 15 10.18	18 28 15.1	26.43	9	9 20 52.62	13 52 56.2	83.98
10	7 17 51.36	18 25 32.2	27.85	10	9 23 23.53	13 44 29.7	84.86
11	7 20 32.47	18 22 40.9	29.26	11	9 25 54.13	13 35 57.9	85.73
12	7 23 13.50	18 19 41.1	30.67	12	9 28 24.42	13 27 21.0	86.58
13	7 25 54.44	18 16 32.9	32.07	13	9 30 54.39	13 18 39.0	87.42
14	7 28 35.29	18 13 16.3	33.46	14	9 33 24.04	13 9 52.0	88.24
15	7 31 16.03	18 9 51.4	34.85	15	9 35 53.38	13 1 0.1	89.05
16	7 33 56.66	18 6 18.1	36.24	16	9 38 22.40	12 52 3.4	89.84
17	7 36 37.18	18 2 36.5	37.61	17	9 40 51.09	12 43 2.0	90.62
18	7 39 17.57	17 58 46.8	38.98	18	9 43 19.47	12 33 55.9	91.39
19	7 41 57.83	17 54 48.8	40.34	19	9 45 47.53	12 24 45.3	92.13
20	7 44 37.95	17 50 42.7	41.69	20	9 48 15.26	12 15 30.3	92.86
21	7 47 17.93	17 46 28.5	43.04	21	9 50 42.67	12 6 11.0	93.58
22	7 49 57.76	17 42 6.2	44.38	22	9 53 9.76	11 56 47.4	94.28
23	7 52 37.43	N. 17° 37' 35".9	45.71	23	9 55 36.52	N. 11° 47' 19".6	94.97
FRIDAY 10.				SUNDAY 12.			
0	7 55 16.94	N. 17° 32' 57".7	47.03	0	9 58 2.96	N. 11° 37' 47".7	95.64
1	7 57 56.27	17 28 11.6	48.34	1	10 0 29.08	11 28 11.9	96.29
2	8 0 35.43	17 23 17.6	49.64	2	10 2 54.87	11 18 32.2	96.93
3	8 3 14.40	17 18 15.9	50.93	3	10 5 20.33	11 8 48.7	97.56
4	8 5 53.18	17 13 6.5	52.21	4	10 7 45.48	10 59 1.5	98.17
5	8 8 31.77	17 7 49.4	53.48	5	10 10 10.30	10 49 10.7	98.77
6	8 11 10.16	17 2 24.7	54.74	6	10 12 34.80	10 39 16.3	99.35
7	8 13 48.34	16 56 52.5	55.98	7	10 14 58.98	10 29 18.5	99.91
8	8 16 26.30	16 51 12.9	57.22	8	10 17 22.83	10 19 17.4	100.46
9	8 19 4.05	16 45 25.8	58.46	9	10 19 46.37	10 9 13.0	100.99
10	8 21 41.58	16 39 31.4	59.67	10	10 22 9.58	9 59 5.5	101.51
11	8 24 18.87	16 33 29.8	60.87	11	10 24 32.48	9 48 54.9	102.01
12	8 26 55.93	16 27 21.0	62.06	12	10 26 55.05	9 38 41.4	102.49
13	8 29 32.75	16 21 5.1	63.23	13	10 29 17.31	9 28 25.0	102.97
14	8 32 9.33	16 14 42.2	64.40	14	10 31 39.25	9 18 5.7	103.44
15	8 34 45.65	16 8 12.3	65.56	15	10 34 0.88	9 7 43.7	103.88
16	8 37 21.73	16 1 35.5	66.70	16	10 36 22.19	8 57 19.1	104.31
17	8 39 57.55	15 54 51.9	67.82	17	10 38 43.20	8 46 51.9	104.73
18	8 42 33.10	15 48 1.6	68.93	18	10 41 3.89	8 36 22.3	105.13
19	8 45 8.39	15 41 4.7	70.03	19	10 43 24.28	8 25 50.3	105.52
20	8 47 43.41	15 34 1.2	71.12	20	10 45 44.36	8 15 16.0	105.90
21	8 50 18.16	15 26 51.2	72.20	21	10 48 4.13	8 4 39.5	106.26
22	8 52 52.63	15 19 34.8	73.26	22	10 50 23.60	7 54 0.9	106.60
23	8 55 26.82	15 12 12.1	74.31	23	10 52 42.77	7 43 20.3	106.93
24	8 58 0.73	N. 15° 4' 43".1	75.34	24	10 55 1.64	N. 7° 32' 37".7	107.26

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
MONDAY 13.				WEDNESDAY 15.			
0	h m s	N. ° ' "	"	0	h m s	S. ° ' "	"
0	10 55 1.64	N. 7 32 37.7	107.26	0	12 41 4.65	S. 1 15 19.6	108.49
1	10 57 20.21	7 21 53.2	107.56	1	12 43 12.09	1 26 9.9	108.27
2	10 59 38.49	7 11 7.0	107.84	2	12 45 19.37	1 36 58.9	108.04
3	11 1 56.47	7 0 19.1	108.12	3	12 47 26.50	1 47 46.4	107.80
4	11 4 14.16	6 49 29.5	108.39	4	12 49 33.47	1 58 32.5	107.56
5	11 6 31.57	6 38 38.4	108.64	5	12 51 40.30	2 9 17.1	107.31
6	11 8 48.68	6 27 45.8	108.88	6	12 53 46.98	2 20 0.2	107.04
7	11 11 5.51	6 16 51.8	109.11	7	12 55 53.52	2 30 41.6	106.77
8	11 13 22.06	6 5 56.5	109.32	8	12 57 59.92	2 41 21.4	106.49
9	11 15 38.33	5 55 0.0	109.52	9	13 0 6.19	2 51 59.5	106.21
10	11 17 54.32	5 44 2.3	109.70	10	13 2 12.32	3 2 35.9	105.92
11	11 20 10.04	5 33 3.6	109.87	11	13 4 18.32	3 13 10.5	105.61
12	11 22 25.49	5 22 3.8	110.04	12	13 6 24.20	3 23 43.2	105.30
13	11 24 40.67	5 11 3.1	110.19	13	13 8 29.95	3 34 14.1	104.98
14	11 26 55.58	5 0 1.5	110.33	14	13 10 35.58	3 44 43.0	104.66
15	11 29 10.23	4 48 59.2	110.45	15	13 12 41.09	3 55 10.0	104.33
16	11 31 24.61	4 37 56.1	110.56	16	13 14 46.49	4 5 35.0	103.99
17	11 33 38.74	4 26 52.4	110.66	17	13 16 51.77	4 15 57.9	103.65
18	11 35 52.61	4 15 48.2	110.75	18	13 18 56.95	4 26 18.8	103.30
19	11 38 6.23	4 4 43.4	110.83	19	13 21 2.02	4 36 37.5	102.93
20	11 40 19.61	3 53 38.2	110.90	20	13 23 6.98	4 46 54.0	102.57
21	11 42 32.73	3 42 32.6	110.95	21	13 25 11.85	4 57 8.3	102.20
22	11 44 45.61	3 31 26.8	110.99	22	13 27 16.62	5 7 20.4	101.82
23	11 46 58.25	N. 3 20 20.7	111.02	23	13 29 21.29	S. 5 17 30.1	101.43
TUESDAY 14.				THURSDAY 16.			
0	h m s	N. ° ' "	"	0	h m s	S. ° ' "	"
0	11 49 10.64	N. 3 9 14.5	111.04	0	13 31 25.87	S. 5 27 37.5	101.03
1	11 51 22.80	2 58 8.2	111.06	1	13 33 30.36	5 37 42.5	100.63
2	11 53 34.74	2 47 1.8	111.06	2	13 35 34.77	5 47 45.1	100.23
3	11 55 46.44	2 35 55.5	111.04	3	13 37 39.09	5 57 45.3	99.82
4	11 57 57.91	2 24 49.3	111.01	4	13 39 43.33	6 7 43.0	99.40
5	12 0 9.17	2 13 43.3	110.98	5	13 41 47.49	6 17 38.1	98.98
6	12 2 20.20	2 2 37.5	110.94	6	13 43 51.58	6 27 30.7	98.55
7	12 4 31.02	1 51 32.0	110.88	7	13 45 55.60	6 37 20.7	98.11
8	12 6 41.62	1 40 26.9	110.82	8	13 47 59.54	6 47 8.0	97.67
9	12 8 52.01	1 29 22.2	110.75	9	13 50 3.42	6 56 52.7	97.22
10	12 11 2.19	1 18 17.9	110.67	10	13 52 7.23	7 6 34.6	96.76
11	12 13 12.17	1 7 14.1	110.58	11	13 54 10.98	7 16 13.8	96.29
12	12 15 21.94	0 56 11.0	110.47	12	13 56 14.67	7 25 50.1	95.83
13	12 17 31.52	0 45 8.5	110.35	13	13 58 18.30	7 35 23.7	95.36
14	12 19 40.90	0 34 6.8	110.23	14	14 0 21.88	7 44 54.4	94.88
15	12 21 50.09	0 23 5.8	110.10	15	14 2 25.41	7 54 22.2	94.39
16	12 23 59.09	0 12 5.6	109.96	16	14 4 28.89	8 3 47.1	93.91
17	12 26 7.90	N. 0 1 6.3	109.81	17	14 6 32.32	8 13 9.1	93.41
18	12 28 16.53	S. 0 9 52.1	109.65	18	14 8 35.70	8 22 28.0	92.90
19	12 30 24.98	0 20 49.5	109.47	19	14 10 39.04	8 31 43.9	92.40
20	12 32 33.26	0 31 45.8	109.29	20	14 12 42.34	8 40 56.8	91.88
21	12 34 41.36	0 42 41.0	109.11	21	14 14 45.60	8 50 6.5	91.36
22	12 36 49.29	0 53 35.1	108.92	22	14 16 48.83	8 59 13.1	90.84
23	12 38 57.05	1 4 28.0	108.71	23	14 18 52.02	9 8 16.6	90.31
24	12 41 4.65	S. 1 15 19.6	108.49	24	14 20 55.18	S. 9 17 16.9	89.78

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 17.				SUNDAY 19.			
0	14 20 55.18	S. 9 17 16.9	89.78	0	15 59 25.11	S. 15 17 39.1	58.72
1	14 22 58.31	9 26 14.0	89.24	1	16 1 28.74	15 23 29.2	57.98
2	14 25 1.42	9 35 7.8	88.69	2	16 3 32.41	15 29 14.8	57.23
3	14 27 4.50	9 43 58.3	88.14	3	16 5 36.11	15 34 55.9	56.48
4	14 29 7.56	9 52 45.5	87.58	4	16 7 39.85	15 40 32.5	55.72
5	14 31 10.59	10 1 29.3	87.02	5	16 9 43.63	15 46 4.5	54.96
6	14 33 13.61	10 10 9.8	86.46	6	16 11 47.44	15 51 32.0	54.20
7	14 35 16.61	10 18 46.9	85.90	7	16 13 51.29	15 56 54.9	53.44
8	14 37 19.60	10 27 20.6	85.33	8	16 15 55.18	16 2 15.3	52.68
9	14 39 22.57	10 35 50.8	84.74	9	16 17 59.10	16 7 27.0	51.90
10	14 41 25.53	10 44 17.5	84.16	10	16 20 3.06	16 12 36.1	51.12
11	14 43 28.49	10 52 40.7	83.58	11	16 22 7.06	16 17 40.5	50.34
12	14 45 31.43	11 1 0.4	82.98	12	16 24 11.09	16 22 40.2	49.56
13	14 47 34.37	11 9 16.5	82.38	13	16 26 15.16	16 27 35.3	48.78
14	14 49 37.31	11 17 28.9	81.77	14	16 28 19.27	16 32 25.6	47.99
15	14 51 40.24	11 25 37.7	81.16	15	16 30 23.42	16 37 11.2	47.21
16	14 53 43.18	11 33 42.9	80.56	16	16 32 27.60	16 41 52.1	46.43
17	14 55 46.11	11 41 44.4	79.94	17	16 34 31.82	16 46 28.3	45.63
18	14 57 49.05	11 49 42.2	79.32	18	16 36 36.08	16 50 59.6	44.83
19	14 59 52.00	11 57 36.2	78.69	19	16 38 40.38	16 55 26.2	44.03
20	15 1 54.95	12 5 26.5	78.06	20	16 40 44.71	16 59 47.9	43.22
21	15 3 57.90	12 13 13.0	77.43	21	16 42 49.08	17 4 4.8	42.41
22	15 6 0.87	12 20 55.6	76.78	22	16 44 53.49	17 8 16.9	41.61
23	15 8 3.84	S. 12 28 34.4	76.13	23	16 46 57.93	S. 17 12 24.1	40.79
SATURDAY 18.				MONDAY 20.			
0	15 10 6.83	S. 12 36 9.2	75.48	0	16 49 2.40	S. 17 16 26.4	39.97
1	15 12 9.83	12 43 40.2	74.84	1	16 51 6.91	17 20 23.8	39.16
2	15 14 12.84	12 51 7.3	74.18	2	16 53 11.45	17 24 16.4	38.35
3	15 16 15.87	12 58 30.4	73.52	3	16 55 16.03	17 28 4.0	37.53
4	15 18 18.92	13 5 49.5	72.86	4	16 57 20.63	17 31 46.7	36.70
5	15 20 21.99	13 13 4.7	72.19	5	16 59 25.27	17 35 24.4	35.87
6	15 22 25.07	13 20 15.8	71.51	6	17 1 29.95	17 38 57.1	35.04
7	15 24 28.18	13 27 22.8	70.83	7	17 3 34.65	17 42 24.9	34.22
8	15 26 31.31	13 34 25.8	70.15	8	17 5 39.38	17 45 47.8	33.39
9	15 28 34.46	13 41 24.6	69.46	9	17 7 44.15	17 49 5.6	32.55
10	15 30 37.63	13 48 19.3	68.77	10	17 9 48.94	17 52 18.4	31.71
11	15 32 40.83	13 55 9.9	68.08	11	17 11 53.76	17 55 26.2	30.87
12	15 34 44.06	14 1 56.3	67.38	12	17 13 58.61	17 58 28.9	30.03
13	15 36 47.32	14 8 38.5	66.68	13	17 16 3.49	18 1 26.6	29.20
14	15 38 50.60	14 15 16.5	65.97	14	17 18 8.39	18 4 19.3	28.35
15	15 40 53.91	14 21 50.2	65.26	15	17 20 13.31	18 7 6.8	27.50
16	15 42 57.25	14 28 19.7	64.55	16	17 22 18.26	18 9 49.3	26.66
17	15 45 0.62	14 34 44.8	63.83	17	17 24 23.24	18 12 26.8	25.81
18	15 47 4.02	14 41 5.7	63.11	18	17 26 28.23	18 14 59.1	24.96
19	15 49 7.46	14 47 22.2	62.39	19	17 28 33.25	18 17 26.3	24.11
20	15 51 10.92	14 53 34.4	61.66	20	17 30 38.29	18 19 48.5	23.26
21	15 53 14.42	14 59 42.2	60.93	21	17 32 43.35	18 22 5.5	22.41
22	15 55 17.95	15 5 45.6	60.20	22	17 34 48.42	18 24 17.4	21.55
23	15 57 21.52	15 11 44.6	59.46	23	17 36 53.51	18 26 24.1	20.69
24	15 59 25.11	S. 15 17 39.1	58.72	24	17 38 58.62	S. 18 28 25.7	19.84

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
TUESDAY 21.				THURSDAY 23.			
0	^h 17 ^m 38 ^s 58.62	S. 18 28 25.7	19.84	0	^h 19 ^m 18 ^s 56.91	S. 18 24 5.0	21.49
1	17 41 3.74	18 30 22.2	18.98	1	19 21 1.16	18 21 53.5	22.33
2	17 43 8.88	18 32 13.5	18.12	2	19 23 5.35	18 19 37.1	23.16
3	17 45 14.02	18 33 59.6	17.26	3	19 25 9.49	18 17 15.6	24.00
4	17 47 19.18	18 35 40.6	16.40	4	19 27 13.57	18 14 49.1	24.83
5	17 49 24.35	18 37 16.4	15.53	5	19 29 17.60	18 12 17.7	25.66
6	17 51 29.53	18 38 47.0	14.66	6	19 31 21.57	18 9 41.2	26.49
7	17 53 34.72	18 40 12.4	13.80	7	19 33 25.48	18 6 59.8	27.31
8	17 55 39.91	18 41 32.6	12.94	8	19 35 29.33	18 4 13.5	28.13
9	17 57 45.11	18 42 47.7	12.08	9	19 37 33.12	18 1 22.3	28.94
10	17 59 50.31	18 43 57.5	11.21	10	19 39 36.85	17 58 26.2	29.76
11	18 1 55.52	18 45 2.2	10.35	11	19 41 40.51	17 55 25.1	30.58
12	18 4 0.72	18 46 1.7	9.48	12	19 43 44.10	17 52 19.2	31.39
13	18 6 5.93	18 46 56.0	8.61	13	19 45 47.63	17 49 8.4	32.20
14	18 8 11.13	18 47 45.0	7.73	14	19 47 51.10	17 45 52.8	33.00
15	18 10 16.33	18 48 28.8	6.87	15	19 49 54.49	17 42 32.4	33.81
16	18 12 21.52	18 49 7.5	6.01	16	19 51 57.82	17 39 7.1	34.61
17	18 14 26.71	18 49 40.9	5.13	17	19 54 1.07	17 35 37.1	35.40
18	18 16 31.90	18 50 9.1	4.26	18	19 56 4.26	17 32 2.3	36.20
19	18 18 37.07	18 50 32.1	3.39	19	19 58 7.37	17 28 22.7	36.99
20	18 20 42.24	18 50 49.8	2.52	20	20 0 10.41	17 24 38.4	37.78
21	18 22 47.39	18 51 2.4	1.66	21	20 2 13.38	17 20 49.4	38.57
22	18 24 52.53	18 51 9.7	0.79	22	20 4 16.27	17 16 55.6	39.35
23	18 26 57.66	S. 18 51 11.9	0.08	23	20 6 19.09	S. 17 12 57.2	40.12
WEDNESDAY 22.				FRIDAY 24.			
0	18 29 2.77	S. 18 51 8.8	0.95	0	20 8 21.82	S. 17 8 54.2	40.89
1	18 31 7.86	18 51 0.5	1.82	1	20 10 24.48	17 4 46.5	41.66
2	18 33 12.94	18 50 47.0	2.68	2	20 12 27.06	17 0 34.3	42.43
3	18 35 17.99	18 50 28.3	3.55	3	20 14 29.56	16 56 17.4	43.20
4	18 37 23.03	18 50 4.4	4.41	4	20 16 31.99	16 51 55.9	43.96
5	18 39 28.04	18 49 35.4	5.27	5	20 18 34.33	16 47 29.9	44.71
6	18 41 33.02	18 49 1.1	6.14	6	20 20 36.59	16 42 59.4	45.47
7	18 43 37.98	18 48 21.7	7.01	7	20 22 38.77	16 38 24.3	46.22
8	18 45 42.91	18 47 37.0	7.87	8	20 24 40.87	16 33 44.8	46.96
9	18 47 47.82	18 46 47.2	8.73	9	20 26 42.89	16 29 0.8	47.70
10	18 49 52.69	18 45 52.3	9.58	10	20 28 44.82	16 24 12.4	48.43
11	18 51 57.53	18 44 52.2	10.45	11	20 30 46.67	16 19 19.6	49.17
12	18 54 2.34	18 43 46.9	11.31	12	20 32 48.44	16 14 22.3	49.91
13	18 56 7.11	18 42 36.5	12.16	13	20 34 50.12	16 9 20.7	50.63
14	18 58 11.85	18 41 21.0	13.01	14	20 36 51.72	16 4 14.8	51.35
15	19 0 16.55	18 40 0.3	13.87	15	20 38 53.23	15 59 4.5	52.07
16	19 2 21.21	18 38 34.5	14.73	16	20 40 54.65	15 53 49.9	52.78
17	19 4 25.83	18 37 3.6	15.58	17	20 42 55.99	15 48 31.1	53.49
18	19 6 30.40	18 35 27.6	16.43	18	20 44 57.24	15 43 8.0	54.20
19	19 8 34.94	18 33 46.5	17.28	19	20 46 58.41	15 37 40.7	54.89
20	19 10 39.43	18 32 0.3	18.12	20	20 48 59.49	15 32 9.3	55.59
21	19 12 43.87	18 30 9.0	18.96	21	20 51 0.48	15 26 33.6	56.29
22	19 14 48.27	18 28 12.7	19.80	22	20 53 1.38	15 20 53.8	56.98
23	19 16 52.61	18 26 11.4	20.64	23	20 55 2.20	15 15 9.9	57.66
24	19 18 56.91	S. 18 24 5.0	21.49	24	20 57 2.93	S. 15 9 21.9	58.34

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 25.				MONDAY 27.			
0	^h 20 ^m 57 ^s 2.93	S. 15 9 21.9	58.34	0	^h 22 ^m 32 ^s 2.81	S. 9 20 14.9	85.15
1	20 59 3.57	15 3 29.8	59.01	1	22 33 59.91	9 11 42.7	85.58
2	21 1 4.13	14 57 33.7	59.68	2	22 35 56.96	9 3 7.9	86.00
3	21 3 4.59	14 51 33.6	60.35	3	22 37 53.97	8 54 30.7	86.42
4	21 5 4.97	14 45 29.5	61.01	4	22 39 50.94	8 45 50.9	86.83
5	21 7 5.27	14 39 21.4	61.67	5	22 41 47.86	8 37 8.7	87.23
6	21 9 5.47	14 33 9.5	62.32	6	22 43 44.75	8 28 24.1	87.64
7	21 11 5.59	14 26 53.6	62.97	7	22 45 41.59	8 19 37.0	88.04
8	21 13 5.63	14 20 33.8	63.61	8	22 47 38.40	8 10 47.6	88.43
9	21 15 5.58	14 14 10.3	64.24	9	22 49 35.18	8 1 55.9	88.81
10	21 17 5.44	14 7 42.9	64.88	10	22 51 31.92	7 53 1.9	89.18
11	21 19 5.21	14 1 11.7	65.51	11	22 53 28.63	7 44 5.7	89.55
12	21 21 4.90	13 54 36.7	66.14	12	22 55 25.32	7 35 7.3	89.92
13	21 23 4.51	13 47 58.0	66.75	13	22 57 21.98	7 26 6.7	90.28
14	21 25 4.03	13 41 15.7	67.37	14	22 59 18.61	7 17 3.9	90.64
15	21 27 3.46	13 34 29.6	67.98	15	23 1 15.22	7 7 59.0	90.98
16	21 29 2.81	13 27 39.9	68.58	16	23 3 11.81	6 58 52.1	91.33
17	21 31 2.08	13 20 46.7	69.18	17	23 5 8.38	6 49 43.1	91.67
18	21 33 1.27	13 13 49.8	69.77	18	23 7 4.94	6 40 32.0	92.01
19	21 35 0.38	13 6 49.4	70.36	19	23 9 1.48	6 31 19.0	92.33
20	21 36 59.40	12 59 45.5	70.94	20	23 10 58.00	6 22 4.1	92.65
21	21 38 58.35	12 52 38.1	71.52	21	23 12 54.52	6 12 47.2	92.97
22	21 40 57.21	12 45 27.2	72.09	22	23 14 51.03	6 3 28.5	93.27
23	21 42 56.00	S. 12 38 13.0	72.66	23	23 16 47.53	S. 5 54 8.0	93.57
SUNDAY 26.				TUESDAY 28.			
0	21 44 54.71	S. 12 30 55.3	73.23	0	23 18 44.02	S. 5 44 45.6	93.87
1	21 46 53.34	12 23 34.2	73.78	1	23 20 40.51	5 35 21.5	94.17
2	21 48 51.89	12 16 9.9	74.33	2	23 22 37.01	5 25 55.6	94.46
3	21 50 50.37	12 8 42.2	74.89	3	23 24 33.51	5 16 28.0	94.73
4	21 52 48.77	12 1 11.2	75.43	4	23 26 30.01	5 6 58.8	95.00
5	21 54 47.10	11 53 37.0	75.97	5	23 28 26.52	4 57 28.0	95.27
6	21 56 45.36	11 45 59.6	76.50	6	23 30 23.04	4 47 55.6	95.53
7	21 58 43.54	11 38 19.0	77.02	7	23 32 19.58	4 38 21.6	95.79
8	22 0 41.66	11 30 35.3	77.54	8	23 34 16.13	4 28 46.1	96.04
9	22 2 39.70	11 22 48.5	78.06	9	23 36 12.69	4 19 9.1	96.29
10	22 4 37.67	11 14 58.6	78.57	10	23 38 9.27	4 9 30.6	96.53
11	22 6 35.58	11 7 5.7	79.07	11	23 40 5.88	3 59 50.8	96.75
12	22 8 33.42	10 59 9.7	79.57	12	23 42 2.52	3 50 9.6	96.97
13	22 10 31.20	10 51 10.8	80.07	13	23 43 59.18	3 40 27.1	97.20
14	22 12 28.91	10 43 8.9	80.56	14	23 45 55.87	3 30 43.2	97.42
15	22 14 26.56	10 35 4.1	81.04	15	23 47 52.60	3 20 58.1	97.62
16	22 16 24.15	10 26 56.4	81.52	16	23 49 49.36	3 11 11.8	97.82
17	22 18 21.68	10 18 45.9	81.99	17	23 51 46.15	3 1 24.3	98.01
18	22 20 19.15	10 10 32.5	82.46	18	23 53 42.98	2 51 35.7	98.20
19	22 22 16.56	10 2 16.3	82.92	19	23 55 39.86	2 41 45.9	98.39
20	22 24 13.92	9 53 57.4	83.38	20	23 57 36.79	2 31 55.0	98.57
21	22 26 11.22	9 45 35.8	83.83	21	23 59 33.76	2 22 3.1	98.73
22	22 28 8.47	9 37 11.5	84.28	22	0 1 30.78	2 12 10.2	98.89
23	22 30 5.67	9 28 44.5	84.72	23	0 3 27.85	2 2 16.4	99.05
24	22 32 2.81	S. 9 20 14.9	85.15	24	0 5 24.98	S. 1 52 21.6	99.20

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 29.				FRIDAY 31.			
0	^h 5 ^m 24 ^s 98	S. 1 52 21 6	99 20	0	^h 1 41 ^m 10 ^s 13	N. 6 8 40 4	98 50
1	0 7 22 17	1 42 26 0	99 34	1	1 43 13 62	6 18 30 8	98 30
2	0 9 19 42	1 32 29 5	99 48	2	1 45 17 31	6 28 20 0	98 09
3	0 11 16 73	1 22 32 2	99 62	3	1 47 21 22	6 38 7 9	97 88
4	0 13 14 11	1 12 34 1	99 75	4	1 49 25 34	6 47 54 5	97 65
5	0 15 11 56	1 2 35 2	99 87	5	1 51 29 67	6 57 39 7	97 42
6	0 17 9 09	0 52 35 7	99 98	6	1 53 34 22	7 7 23 6	97 19
7	0 19 6 69	0 42 35 5	99 09	7	1 55 38 99	7 17 6 0	96 93
8	0 21 4 36	0 32 34 6	100 19	8	1 57 43 99	7 26 46 8	96 67
9	0 23 2 12	0 22 33 2	100 28	9	1 59 49 21	7 36 26 1	96 41
10	0 24 59 97	0 12 31 2	100 37	10	2 1 54 66	7 46 3 7	96 13
11	0 26 57 90	S. 0 2 28 7	100 46	11	2 4 0 35	7 55 39 7	95 86
12	0 28 55 92	N. 0 7 34 3	100 53	12	2 6 6 27	8 5 14 0	95 57
13	0 30 54 04	0 17 37 7	100 60	13	2 8 12 43	8 14 46 5	95 26
14	0 32 52 25	0 27 41 5	100 66	14	2 10 18 83	8 24 17 1	94 95
15	0 34 50 56	0 37 45 6	100 71	15	2 12 25 48	8 33 45 9	94 63
16	0 36 48 97	0 47 50 0	100 76	16	2 14 32 38	8 43 12 7	94 30
17	0 38 47 49	0 57 54 7	100 80	17	2 16 39 53	8 52 37 5	93 97
18	0 40 46 11	1 7 59 6	100 83	18	2 18 46 93	9 2 0 3	93 62
19	0 42 44 85	1 18 4 7	100 86	19	2 20 54 58	9 11 20 9	93 26
20	0 44 43 70	1 28 10 0	100 88	20	2 23 2 50	9 20 39 4	92 89
21	0 46 42 67	1 38 15 3	100 89	21	2 25 10 68	9 29 55 6	92 52
22	0 48 41 75	1 48 20 7	100 91	22	2 27 19 12	9 39 9 6	92 14
23	0 50 40 96	N. 1 58 26 2	100 91	23	2 29 27 83	N. 9 48 21 3	91 74
THURSDAY 30.				SATURDAY, FEB. 1.			
0	0 52 40 30	N. 2 8 31 6	100 90	0	2 31 36 81	N. 9 57 30 5	91 33
1	0 54 39 76	2 18 37 0	100 88				
2	0 56 39 35	2 28 42 2	100 86				
3	0 58 39 08	2 38 47 3	100 83				
4	1 0 38 95	2 48 52 2	100 79				
5	1 2 38 96	2 58 56 8	100 75				
6	1 4 39 11	3 9 1 2	100 70				
7	1 6 39 41	3 19 5 2	100 64				
8	1 8 39 86	3 29 8 9	100 57				
9	1 10 40 47	3 39 12 1	100 50				
10	1 12 41 24	3 49 14 9	100 42				
11	1 14 42 16	3 59 17 2	100 33				
12	1 16 43 25	4 9 18 9	100 24				
13	1 18 44 50	4 19 20 1	100 14				
14	1 20 45 92	4 29 20 6	100 03				
15	1 22 47 52	4 39 20 4	99 91				
16	1 24 49 29	4 49 19 5	99 78				
17	1 26 51 24	4 59 17 8	99 65				
18	1 28 53 37	5 9 15 3	99 52				
19	1 30 55 68	5 19 12 0	99 37				
20	1 32 58 19	5 29 7 7	99 20				
21	1 35 0 88	5 39 2 4	99 03				
22	1 37 3 76	5 48 56 1	98 86				
23	1 39 6 85	5 58 48 8	98 69				
24	1 41 10 13	N. 6 8 40 4	98 50				

PHASES OF THE MOON.

Jan. 2	☾ First Quarter	- 16 2 7
9	☉ Full Moon	- 10 52 6
16	☾ Last Quarter	- 5 3 6
24	● New Moon	- 7 18 2

Jan. 9	☾ Perigee	- - - - 14
23	☾ Apogee	- - - - 7

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
1	SUN W.	70 51 56	3295	72 16 13	3282	73 40 45	3269	75 5 33	3256
	Venus W.	46 50 51	3394	48 13 14	3380	49 35 53	3366	50 58 48	3352
	Jupiter W.	16 24 27	2983	17 55 1	2970	19 25 52	2957	20 56 59	2943
	α Arietis E.	45 44 39	3189	44 18 17	3194	42 52 1	3200	41 25 52	3208
	Aldebaran E.	76 36 27	2905	75 4 14	2894	73 31 47	2881	71 59 4	2869
2	SUN W.	82 13 37	3183	83 40 7	3167	85 6 56	3151	86 34 4	3134
	Venus W.	57 57 43	3274	59 22 25	3258	60 47 26	3240	62 12 48	3223
	Fomalhaut W.	36 5 29	3819	37 20 11	3734	38 36 22	3656	39 53 56	3583
	Jupiter W.	28 36 56	2873	30 9 50	2858	31 43 3	2843	33 16 35	2827
	Aldebaran E.	64 11 29	2803	62 37 5	2789	61 2 23	2774	59 27 21	2759
	Pollux E.	107 53 18	2880	106 20 34	2865	104 47 31	2849	103 14 6	2833
3	SUN W.	93 54 55	3047	95 24 10	3028	96 53 48	3009	98 23 49	2990
	Venus W.	69 24 52	3131	70 52 24	3113	72 20 18	3093	73 48 36	3073
	Fomalhaut W.	46 39 45	3294	48 4 4	3247	49 29 18	3202	50 55 25	3159
	Jupiter W.	41 9 29	2745	42 45 9	2728	44 21 12	2711	45 57 38	2693
	α Pegasi W.	33 16 3	3792	34 31 14	3686	35 48 16	3590	37 7 1	3504
	Aldebaran E.	51 27 5	2678	49 49 56	2662	48 12 25	2645	46 34 31	2627
	Pollux E.	95 21 46	2750	93 46 12	2732	92 10 15	2716	90 33 56	2698
4	SUN W.	105 59 57	2893	107 32 25	2872	109 5 20	2852	110 38 40	2832
	Venus W.	81 16 16	2972	82 47 4	2951	84 18 18	2931	85 49 58	2909
	Fomalhaut W.	58 18 13	2971	59 49 2	2938	61 20 32	2906	62 52 43	2875
	Jupiter W.	54 5 54	2601	55 44 48	2581	57 24 9	2563	59 3 55	2543
	α Pegasi W.	44 2 33	3165	45 29 24	3111	46 57 20	3061	48 26 17	3013
	Aldebaran E.	38 18 56	2537	36 38 34	2518	34 57 46	2499	33 16 32	2480
	Pollux E.	82 26 21	2609	80 47 38	2590	79 8 30	2572	77 28 57	2555
5	SUN W.	118 31 56	2730	120 7 56	2710	121 44 22	2690	123 21 15	2671
	Venus W.	93 35 5	2804	95 9 28	2782	96 44 19	2762	98 19 37	2741
	Fomalhaut W.	70 43 15	2734	72 19 10	2708	73 55 39	2683	75 32 42	2659
	Jupiter W.	67 29 29	2447	69 11 57	2428	70 54 52	2408	72 38 15	2390
	α Pegasi W.	56 4 57	2810	57 39 12	2775	59 14 12	2742	60 49 56	2710
	Pollux E.	69 5 4	2467	67 23 4	2450	65 40 40	2433	63 57 53	2417
	Regulus E.	104 51 10	2386	103 7 15	2367	101 22 53	2348	99 38 3	2329
6	Venus W.	106 22 54	2640	108 0 54	2621	109 39 20	2602	111 18 12	2583
	Fomalhaut W.	83 45 43	2550	85 25 46	2531	87 6 16	2513	88 47 11	2495
	Jupiter W.	81 21 55	2297	83 7 59	2279	84 54 30	2262	86 41 26	2244
	α Pegasi W.	68 58 48	2568	70 38 27	2543	72 18 40	2520	73 59 26	2497
	α Arietis W.	26 6 21	3017	27 36 13	2911	29 8 18	2820	30 42 20	2740
	Pollux E.	55 18 22	2344	53 33 26	2331	51 48 11	2320	50 2 40	2309
	Regulus E.	90 47 8	2237	88 59 36	2220	87 11 38	2202	85 23 14	2186
7	Fomalhaut W.	97 17 29	2423	99 0 31	2412	100 43 49	2402	102 27 21	2393
	Jupiter W.	95 42 20	2164	97 31 42	2150	99 21 25	2136	101 11 30	2123
	α Pegasi W.	82 30 43	2399	84 14 19	2384	85 58 17	2368	87 42 38	2354
	α Arietis W.	38 55 18	2460	40 37 28	2420	42 20 34	2383	44 4 33	2350
	Pollux E.	41 11 50	2277	39 25 17	2276	37 38 43	2279	35 52 13	2285
	Regulus E.	76 15 2	2107	74 24 13	2092	72 33 2	2078	70 41 29	2065
8	Jupiter W.	110 26 40	2065	112 18 33	2055	114 10 41	2047	116 3 2	2039

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
1	Sun W.	76 30 36	3242	77 55 56	3228	79 21 32	3213	80 47 26	3198
	Venus W.	52 22 0	3337	53 45 29	3322	55 9 15	3306	56 33 20	3290
	Jupiter W.	22 28 24	2930	24 0 5	2916	25 32 4	2902	27 4 21	2887
	α Arietis E.	39 59 53	3218	38 34 7	3231	37 8 35	3247	35 43 22	3267
	Aldebaran E.	70 26 6	2857	68 52 52	2845	67 19 22	2831	65 45 34	2818
2	Sun W.	88 1 33	3118	89 29 21	3100	90 57 31	3083	92 26 2	3065
	Venus W.	63 38 30	3205	65 4 33	3187	66 30 57	3169	67 57 44	3151
	Fomalhaut W.	41 12 49	3517	42 32 54	3456	43 54 7	3399	45 16 25	3345
	Jupiter W.	34 50 28	2811	36 24 41	2795	37 59 15	2779	39 34 11	2762
	Aldebaran E.	57 51 59	2744	56 16 17	2728	54 40 15	2712	53 3 51	2695
	Pollux E.	101 40 21	2817	100 6 15	2800	98 31 47	2784	96 56 58	2766
3	Sun W.	99 54 14	2971	101 25 3	2952	102 56 16	2932	104 27 54	2913
	Venus W.	75 17 19	3054	76 46 25	3033	78 15 57	3013	79 45 53	2992
	Fomalhaut W.	52 22 24	3118	53 50 11	3079	55 18 47	3042	56 48 8	3006
	Jupiter W.	47 34 28	2675	49 11 42	2656	50 49 21	2637	52 27 25	2619
	α Pegasi W.	38 27 21	3424	39 49 10	3351	41 12 22	3285	42 36 51	3223
	Aldebaran E.	44 56 13	2610	43 17 31	2591	41 38 24	2574	39 58 53	2555
	Pollux E.	88 57 13	2680	87 20 6	2662	85 42 35	2644	84 4 40	2627
4	Sun W.	112 12 26	2812	113 46 38	2791	115 21 18	2771	116 56 24	2751
	Venus W.	87 22 6	2888	88 54 40	2867	90 27 41	2846	92 1 9	2825
	Fomalhaut W.	64 25 34	2845	65 59 4	2816	67 33 11	2788	69 7 55	2760
	Jupiter W.	60 44 8	2524	62 24 48	2505	64 5 54	2485	65 47 28	2466
	α Pegasi W.	49 56 14	2969	51 27 6	2926	52 58 52	2885	54 31 30	2847
	Aldebaran E.	31 34 51	2461	29 52 43	2443	28 10 9	2424	26 27 8	2405
	Pollux E.	75 49 0	2536	74 8 37	2519	72 27 51	2502	70 46 40	2484
5	Sun W.	124 58 34	2651	126 36 20	2631	128 14 33	2612	129 53 11	2593
	Venus W.	99 55 22	2721	101 31 34	2700	103 8 14	2680	104 45 21	2660
	Fomalhaut W.	77 10 17	2636	78 48 23	2613	80 27 0	2591	82 6 7	2570
	Jupiter W.	74 22 4	2370	76 6 22	2352	77 51 6	2333	79 36 17	2315
	α Pegasi W.	62 26 23	2679	64 3 31	2649	65 41 19	2621	67 19 45	2594
	Pollux E.	62 14 42	2401	60 31 9	2386	58 47 14	2371	57 2 58	2357
	Regulus E.	97 52 46	2311	96 7 2	2292	94 20 51	2274	92 34 13	2255
6	Venus W.	112 57 30	2566	114 37 12	2548	116 17 18	2531	117 57 48	2514
	Fomalhaut W.	90 28 31	2479	92 10 14	2463	93 52 19	2449	95 34 45	2436
	Jupiter W.	88 28 48	2227	90 16 35	2211	92 4 46	2195	93 53 22	2180
	α Pegasi W.	75 40 43	2475	77 22 31	2455	79 4 48	2436	80 47 32	2417
	α Arietis W.	32 18 7	2670	33 55 28	2608	35 34 12	2553	37 14 11	2504
	Pollux E.	48 16 54	2299	46 30 53	2291	44 44 41	2285	42 58 19	2280
	Regulus E.	83 34 25	2169	81 45 10	2153	79 55 31	2137	78 5 28	2122
7	Fomalhaut W.	104 11 6	2386	105 55 1	2380	107 39 4	2376	109 23 13	2373
	Jupiter W.	103 1 54	2109	104 52 39	2097	106 43 42	2086	108 35 3	2075
	α Pegasi W.	89 27 19	2341	91 12 18	2330	92 57 34	2320	94 43 5	2310
	α Arietis W.	45 49 19	2320	47 34 49	2292	49 21 0	2267	51 7 47	2244
	Pollux E.	34 5 52	2294	32 19 44	2309	30 33 58	2329	28 48 41	2357
	Regulus E.	68 49 36	2053	66 57 24	2041	65 4 53	2029	63 12 4	2019
8	Jupiter W.	117 55 36	2032	119 48 20	2026	121 41 14	2020	123 34 18	2015

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
8	α Pegasi W.	96 28 50	2302	98 14 46	2296	100 0 51	2291	101 47 4	2287
	α Arietis W.	52 55 9	2223	54 43 2	2204	56 31 24	2186	58 20 12	2171
	Aldebaran W.	18 49 29	2008	20 42 51	1998	22 36 28	1989	24 30 19	1982
	Regulus E.	61 18 59	2008	59 25 37	1999	57 32 2	1990	55 38 12	1983
	Spica E.	114 51 41	2034	112 58 59	2023	111 6 1	2014	109 12 48	2005
9	α Arietis W.	67 29 23	2115	69 20 0	2108	71 10 48	2102	73 1 44	2097
	Aldebaran W.	34 2 16	1954	35 57 3	1951	37 51 55	1948	39 46 51	1947
	Regulus E.	46 6 25	1955	44 11 40	1953	42 16 51	1951	40 21 59	1949
	Spica E.	99 43 53	1975	97 49 40	1973	95 55 23	1970	94 1 2	1969
10	α Arietis W.	82 17 34	2093	84 8 44	2096	85 59 50	2099	87 50 50	2104
	Aldebaran W.	49 21 37	1952	51 16 27	1956	53 11 11	1960	55 5 48	1965
	Regulus E.	30 47 32	1956	28 52 48	1960	26 58 11	1965	25 3 41	1970
	Spica E.	84 29 8	1974	82 34 53	1978	80 40 44	1983	78 46 43	1988
	Saturn E.	125 5 28	1989	123 11 36	1992	121 17 49	1996	119 24 8	2001
11	α Arietis W.	97 3 28	2144	98 53 20	2156	100 42 54	2168	102 32 10	2181
	Aldebaran W.	64 36 26	2003	66 29 56	2012	68 23 11	2023	70 16 10	2034
	Pollux W.	22 54 36	2476	24 36 23	2422	26 19 26	2381	28 3 28	2350
	Spica E.	69 19 11	2028	67 26 21	2039	65 33 47	2050	63 41 30	2062
	Saturn E.	109 58 3	2037	108 5 27	2046	106 13 5	2057	104 21 0	2068
	Antares E.	115 0 20	2078	113 8 47	2086	111 17 26	2094	109 26 17	2104
12	Aldebaran W.	79 36 27	2098	81 27 29	2113	83 18 9	2127	85 8 27	2143
	Pollux W.	36 51 21	2291	38 37 34	2290	40 23 49	2292	42 10 0	2296
	Spica E.	54 25 5	2132	52 34 55	2149	50 45 10	2165	48 55 50	2182
	Saturn E.	95 5 4	2132	93 14 53	2146	91 25 4	2162	89 35 39	2177
	Antares E.	100 14 37	2163	98 25 13	2176	96 36 9	2191	94 47 28	2206
13	Aldebaran W.	94 13 52	2226	96 1 41	2243	97 49 5	2261	99 36 2	2279
	Pollux W.	50 58 35	2340	52 43 36	2352	54 28 20	2365	56 12 45	2379
	Regulus W.	14 8 40	2239	15 56 10	2254	17 43 18	2270	19 30 2	2286
	Spica E.	39 56 7	2281	38 9 40	2304	36 23 47	2326	34 38 26	2351
	Saturn E.	80 34 30	2260	78 47 32	2278	77 1 0	2296	75 14 54	2314
	Antares E.	85 49 53	2289	84 3 37	2307	82 17 47	2325	80 32 24	2344
	Sun E.	130 29 55	2560	128 50 5	2577	127 10 39	2596	125 31 38	2615
14	Pollux W.	64 49 37	2455	66 31 53	2472	68 13 46	2488	69 55 16	2505
	Regulus W.	28 17 29	2374	30 1 41	2392	31 45 27	2410	33 28 47	2429
	Spica E.	26 1 7	2496	24 19 48	2532	22 39 19	2574	20 59 48	2620
	Saturn E.	66 31 5	2406	64 47 39	2426	63 4 41	2445	61 22 10	2464
	Antares E.	71 52 21	2441	70 9 44	2461	68 27 36	2482	66 45 57	2502
	Sun E.	117 23 1	2711	115 46 36	2731	114 10 38	2750	112 35 5	2770
15	Pollux W.	78 16 47	2591	79 55 54	2609	81 34 37	2626	83 12 57	2643
	Regulus W.	41 58 54	2520	43 39 39	2538	45 19 59	2556	46 59 54	2574
	Saturn E.	52 56 15	2559	51 16 23	2577	49 36 56	2596	47 57 55	2615
	Antares E.	58 24 54	2607	56 46 9	2629	55 7 54	2650	53 30 7	2673
	Sun E.	104 43 49	2869	103 10 51	2888	101 38 17	2908	100 6 8	2926
16	Pollux W.	91 18 47	2728	92 54 49	2745	94 30 29	2761	96 5 48	2778
	Regulus W.	55 13 32	2659	56 51 7	2675	58 28 20	2692	60 5 11	2708
	Saturn E.	39 49 4	2705	38 12 31	2723	36 36 21	2741	35 0 35	2758

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^b .	P.L. of diff.	XVIII ^b .	P.L. of diff.	XXI ^b .	P.L. of diff.
8	α Pegasi W.	103 33 23	2285	105 19 44	2285	107 6 6	2285	108 52 28	2287
	α Arietis W.	60 9 24	2157	61 58 57	2144	63 48 49	2133	65 38 58	2123
	Aldebaran W.	26 24 22	1974	28 18 37	1968	30 13 1	1962	32 7 35	1958
	Regulus E.	53 44 11	1975	51 49 58	1969	49 55 35	1964	48 1 4	1959
	Spica E.	107 19 22	1998	105 25 44	1991	103 31 56	1985	101 37 58	1981
9	α Arietis W.	74 52 48	2094	76 43 56	2092	78 35 8	2091	80 26 21	2091
	Aldebaran W.	41 41 49	1946	43 36 48	1947	45 31 46	1948	47 26 43	1950
	Regulus E.	38 27 4	1949	36 32 9	1949	34 37 14	1950	32 42 21	1953
	Spica E.	92 6 38	1969	90 12 14	1969	88 17 50	1969	86 23 27	1972
10	α Arietis W.	89 41 44	2110	91 32 27	2117	93 23 0	2125	95 13 21	2134
	Aldebaran W.	57 0 17	1972	58 54 36	1978	60 48 45	1986	62 42 42	1994
	Regulus E.	23 9 20	1977	21 15 10	1986	19 21 13	1995	17 27 30	2005
	Spica E.	76 52 50	1995	74 59 7	2002	73 5 36	2010	71 12 17	2018
	Saturn E.	117 30 35	2006	115 37 10	2013	113 43 56	2020	111 50 53	2028
11	α Arietis W.	104 21 7	2195	106 9 42	2210	107 57 54	2226	109 45 42	2243
	Aldebaran W.	72 8 51	2045	74 1 15	2058	75 53 19	2071	77 45 3	2084
	Pollux W.	29 48 14	2328	31 33 32	2312	33 19 14	2300	35 5 13	2294
	Spica E.	61 49 32	2074	59 57 53	2088	58 6 35	2102	56 15 39	2116
	Saturn E.	102 29 11	2079	100 37 40	2092	98 46 28	2105	96 55 36	2118
	Antares E.	107 35 24	2114	105 44 46	2125	103 54 24	2137	102 4 21	2149
12	Aldebaran W.	86 58 20	2158	88 47 50	2174	90 36 56	2191	92 25 37	2208
	Pollux W.	43 56 5	2302	45 42 1	2310	47 27 46	2319	49 13 18	2329
	Spica E.	47 6 56	2201	45 18 30	2220	43 30 33	2240	41 43 5	2260
	Saturn E.	87 46 36	2193	85 57 58	2209	84 9 44	2225	82 21 54	2243
	Antares E.	92 59 9	2221	91 11 13	2238	89 23 42	2254	87 36 35	2271
13	Aldebaran W.	101 22 33	2297	103 8 37	2315	104 54 15	2333	106 39 26	2352
	Pollux W.	57 56 50	2393	59 40 34	2408	61 23 57	2424	63 6 58	2439
	Regulus W.	21 16 22	2303	23 2 17	2320	24 47 47	2338	26 32 51	2356
	Spica E.	32 53 41	2377	31 9 33	2403	29 26 2	2432	27 43 13	2463
	Saturn E.	73 29 14	2333	71 44 2	2351	69 59 16	2369	68 14 57	2388
	Antares E.	78 47 28	2363	77 3 0	2382	75 18 59	2401	73 35 26	2421
	Sun E.	123 53 3	2634	122 14 54	2652	120 37 10	2672	118 59 53	2691
14	Pollux W.	71 36 22	2522	73 17 4	2540	74 57 22	2556	76 37 17	2574
	Regulus W.	35 11 40	2448	36 54 7	2466	38 36 8	2484	40 17 44	2502
	Spica E.	19 21 20	2675	17 44 6	2741	16 8 20	2822	14 34 21	2928
	Saturn E.	59 40 6	2483	57 58 29	2502	56 17 18	2520	54 36 33	2540
	Antares E.	65 4 46	2523	63 24 5	2543	61 43 52	2564	60 4 8	2586
	Sun E.	110 59 58	2791	109 25 18	2810	107 51 3	2829	106 17 13	2849
15	Pollux W.	84 50 53	2660	86 28 26	2678	88 5 35	2695	89 42 22	2711
	Regulus W.	48 39 25	2591	50 18 32	2609	51 57 15	2626	53 35 35	2643
	Saturn E.	46 19 20	2632	44 41 9	2651	43 3 23	2669	41 26 2	2687
	Antares E.	51 52 51	2695	50 16 4	2717	48 39 47	2740	47 4 1	2763
	Sun E.	98 34 22	2946	97 3 1	2965	95 32 4	2982	94 1 29	3001
16	Pollux W.	97 40 45	2793	99 15 22	2810	100 49 37	2825	102 23 32	2841
	Regulus W.	61 41 41	2723	63 17 50	2738	64 53 40	2753	66 29 10	2768
	Saturn E.	33 25 12	2775	31 50 11	2793	30 15 34	2811	28 41 20	2828

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
16	Antares E.	45 28 45	2788	43 54 1	2811	42 19 48	2836	40 46 7	2862
	SUN E.	92 31 18	3018	91 1 28	3037	89 32 1	3054	88 2 55	3070
17	Pollux W.	103 57 7	2856	105 30 23	2871	107 3 19	2886	108 35 56	2900
	Regulus W.	68 4 20	2781	69 39 13	2795	71 13 47	2809	72 48 3	2822
	Spica W.	15 28 51	3084	16 57 20	3047	18 26 35	3022	19 56 20	3005
	Saturn E.	27 7 29	2846	25 34 1	2865	24 0 57	2883	22 28 16	2903
	Antares E.	33 6 23	3009	31 36 22	3044	30 7 4	3082	28 38 33	3125
	SUN E.	80 42 29	3152	79 15 22	3167	77 48 33	3181	76 22 1	3196
18	Regulus W.	80 35 18	2883	82 7 59	2894	83 40 26	2904	85 12 40	2915
	Spica W.	27 28 23	2982	28 58 58	2985	30 29 30	2987	31 59 59	2990
	SUN E.	69 13 30	3262	67 48 34	3274	66 23 52	3285	64 59 23	3296
19	Regulus W.	92 50 42	2961	94 21 44	2969	95 52 36	2977	97 23 18	2984
	Spica W.	39 31 10	3013	41 1 7	3018	42 30 58	3023	44 0 42	3028
	SUN E.	58 0 7	3348	56 36 51	3356	55 13 44	3365	53 50 48	3373
20	Spica W.	51 27 54	3051	52 57 4	3055	54 26 9	3059	55 55 9	3063
	SUN E.	46 58 21	3410	45 36 16	3416	44 14 18	3423	42 52 27	3429
21	Spica W.	63 19 4	3078	64 47 40	3081	66 16 13	3084	67 44 42	3085
	Saturn W.	21 44 34	3129	23 12 8	3127	24 39 45	3125	26 7 24	3124
	Antares W.	19 30 2	3649	20 47 43	3577	22 6 42	3517	23 26 48	3468
	SUN E.	36 4 45	3454	34 43 29	3458	33 22 18	3462	32 1 12	3467
27	SUN W.	29 18 41	3390	30 41 9	3383	32 3 45	3375	33 26 30	3367
	α Arietis E.	60 8 22	3183	58 41 52	3183	57 15 23	3184	55 48 55	3187
	Aldebaran E.	91 43 36	2990	90 13 11	2985	88 42 39	2979	87 12 0	2973
28	SUN W.	40 22 27	3327	41 46 7	3319	43 9 56	3311	44 33 55	3301
	α Arietis E.	48 37 22	3204	47 11 18	3210	45 45 21	3218	44 19 33	3226
	Aldebaran E.	79 36 49	2941	78 5 22	2934	76 33 46	2926	75 2 0	2918
29	SUN W.	51 36 32	3253	53 1 38	3243	54 26 56	3232	55 52 27	3221
	Venus W.	21 21 44	3337	22 45 13	3325	24 8 56	3313	25 32 52	3302
	Jupiter W.	19 51 15	2957	21 22 22	2947	22 53 41	2937	24 25 13	2927
	α Arietis E.	37 13 50	3301	35 49 40	3325	34 25 58	3353	33 2 48	3387
	Aldebaran E.	67 20 37	2876	65 47 48	2867	64 14 47	2857	62 41 33	2848
	Pollux E.	111 1 5	2956	109 29 57	2946	107 58 36	2935	106 27 1	2924
30	SUN W.	63 3 22	3162	64 30 17	3150	65 57 26	3137	67 24 51	3124
	Venus W.	32 35 58	3241	34 1 19	3228	35 26 55	3214	36 52 48	3201
	Jupiter W.	32 6 10	2873	33 39 4	2862	35 12 12	2849	36 45 37	2837
	α Pegasi W.	30 50 30	3154	31 59 40	3026	33 10 54	2912	34 24 2	2811
	Aldebaran E.	54 52 7	2795	53 17 32	2783	51 42 42	2771	50 7 36	2759
	Pollux E.	98 45 32	2866	97 12 30	2854	95 39 12	2842	94 5 39	2830
31	SUN W.	74 46 5	3053	76 15 12	3038	77 44 38	3022	79 14 23	3007
	Jupiter W.	44 36 44	2771	46 11 50	2757	47 47 14	2744	49 22 56	2729
	Venus W.	44 6 19	3128	45 33 54	3113	47 1 48	3098	48 30 0	3082
	α Pegasi W.	40 53 5	3429	42 14 49	3371	43 37 38	3318	45 1 29	3267
	Aldebaran E.	42 8 1	2695	40 31 14	2681	38 54 8	2667	37 16 44	2653
	Pollux E.	86 13 48	2765	84 38 34	2753	83 3 4	2739	81 27 16	2725

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.		Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
16	Antares	E.	39 12 59	2889	37 40 26	2916	36 8 28	2945	34 37 6	2976
	Sun	E.	86 34 9	3088	85 5 45	3104	83 37 40	3120	82 9 55	3136
17	Pollux	W.	110 8 15	2915	111 40 15	2929	113 11 57	2943	114 43 22	2957
	Regulus	W.	74 22 2	2835	75 55 45	2848	77 29 11	2859	79 2 22	2871
	Spica	W.	21 26 26	2994	22 56 46	2988	24 27 14	2983	25 57 48	2982
	Saturn	E.	20 56 1	2924	19 24 13	2946	17 52 53	2971	16 22 4	3000
	Antares	E.	27 10 54	3172	25 44 11	3223	24 18 31	3285	22 54 2	3356
	Sun	E.	74 55 47	3809	73 29 49	3223	72 4 7	3236	70 38 41	3249
18	Regulus	W.	86 44 40	2924	88 16 28	2934	89 48 4	2943	91 19 29	2952
	Spica	W.	33 30 24	2994	35 0 44	2998	36 30 59	3003	38 1 8	3009
	Sun	E.	63 35 7	3308	62 11 5	3318	60 47 14	3328	59 23 35	3338
19	Regulus	W.	98 53 51	2990	100 24 16	2998	101 54 32	3005	103 24 39	3010
	Spica	W.	45 30 20	3033	46 59 52	3038	48 29 18	3042	49 58 39	3047
	Sun	E.	52 28 1	3381	51 5 23	3389	49 42 54	3397	48 20 34	3403
20	Spica	W.	57 24 4	3066	58 52 55	3069	60 21 42	3073	61 50 25	3076
	Sun	E.	41 30 43	3433	40 9 4	3439	38 47 32	3445	37 26 6	3449
21	Spica	W.	69 13 10	3087	70 41 35	3090	72 9 57	3091	73 38 18	3092
	Saturn	W.	27 35 4	3124	29 2 45	3123	30 30 27	3123	31 58 9	3122
	Antares	W.	24 47 48	3427	26 9 34	3393	27 31 59	3364	28 54 57	3339
	Sun	E.	30 40 11	3471	29 19 14	3475	27 58 22	3479	26 37 35	3483
27	Sun	W.	34 49 24	3360	36 12 26	3352	37 35 37	3344	38 58 57	3336
	α Arietis	E.	54 22 30	3188	52 56 7	3191	51 29 47	3195	50 3 32	3199
	Aldebaran	E.	85 41 13	2967	84 10 19	2961	82 39 17	2954	81 8 7	2948
28	Sun	W.	45 58 5	3293	47 22 25	3283	48 46 56	3274	50 11 38	3264
	α Arietis	E.	42 53 55	3236	41 28 29	3249	40 3 18	3264	38 38 24	3281
	Aldebaran	E.	73 30 4	2910	71 57 58	2902	70 25 42	2894	68 53 15	2885
29	Sun	W.	57 18 11	3210	58 44 8	3199	60 10 18	3187	61 36 43	3175
	Venus	W.	26 57 1	3290	28 21 24	3278	29 46 1	3266	31 10 52	3253
	Jupiter	W.	25 56 57	2916	27 28 55	2906	29 1 6	2895	30 33 31	2884
	α Arietis	E.	31 40 16	3427	30 18 30	3474	28 57 37	3531	27 37 47	3599
	Aldebaran	E.	61 8 7	2838	59 34 28	2827	58 0 35	2816	56 26 28	2805
	Pollux	E.	104 55 12	2913	103 23 9	2901	101 50 51	2890	100 18 19	2878
30	Sun	W.	68 52 32	3110	70 20 29	3096	71 48 44	3082	73 17 15	3067
	Venus	W.	38 18 56	3187	39 45 21	3172	41 12 3	3158	42 39 2	3143
	Jupiter	W.	38 19 17	2824	39 53 13	2811	41 27 26	2798	43 1 57	2785
	α Pegasi	W.	35 38 53	3719	36 55 20	3636	38 13 16	3561	39 32 33	3493
	Aldebaran	E.	48 32 14	2747	46 56 36	2734	45 20 42	2721	43 44 30	2708
	Pollux	E.	92 31 50	2817	90 57 44	2805	89 23 22	2792	87 48 43	2779
31	Sun	W.	80 44 27	2992	82 14 50	2975	83 45 34	2959	85 16 38	2943
	Jupiter	W.	50 58 58	2714	52 35 19	2699	54 12 0	2684	55 49 1	2669
	Venus	W.	49 58 32	3066	51 27 23	3050	52 56 34	3033	54 26 6	3016
	α Pegasi	W.	46 26 19	3220	47 52 4	3176	49 18 42	3135	50 46 9	3075
	Aldebaran	E.	35 39 1	2638	34 0 58	2624	32 22 36	2609	30 43 53	2593
	Pollux	E.	79 51 9	2712	78 14 45	2698	76 38 2	2684	75 1 0	2670

Day of the Month.	AIRY's Day Numbers— For correcting the Places of the Fixed Stars.					Mean Time of Transit of the First Point of Aries.
	At Mean Midnight,					
	Logarithms of				Value of L	
	E	F	G	H		
1	1° 33127	1° 65393	0° 03382	1° 53313	62° 201	^h 5 ^m 17 ^s 24·86
2	1° 32461	1° 65324	0° 03513	1° 53299	62° 610	5 13 28·95
3	1° 31785	1° 65249	0° 03643	1° 53284	63° 027	5 9 33·04
4	1° 31101	1° 65166	0° 03772	1° 53269	63° 453	5 5 37·13
5	1° 30411	1° 65079	0° 03900	1° 53253	63° 884	5 1 41·21
6	1° 29713	1° 64984	0° 04027	1° 53236	64° 322	4 57 45·30
7	1° 29006	1° 64882	0° 04153	1° 53217	64° 768	4 53 49·39
8	1° 28293	1° 64776	0° 04278	1° 53198	65° 219	4 49 53·48
9	1° 27572	1° 64663	0° 04402	1° 53179	65° 677	4 45 57·57
10	1° 26842	1° 64542	0° 04525	1° 53159	66° 141	4 42 1° 66
11	1° 26106	1° 64416	0° 04647	1° 53138	66° 610	4 38 5° 75
12	1° 25362	1° 64283	0° 04768	1° 53117	67° 086	4 34 9° 84
13	1° 24610	1° 64144	0° 04887	1° 53095	67° 568	4 30 13° 93
14	1° 23852	1° 64000	0° 05005	1° 53072	68° 054	4 26 18° 02
15	1° 23086	1° 63849	0° 05122	1° 53049	68° 545	4 22 22° 11
16	1° 22312	1° 63692	0° 05237	1° 53025	69° 042	4 18 26° 20
17	1° 21532	1° 63529	0° 05351	1° 53000	69° 543	4 14 30° 29
18	1° 20745	1° 63358	0° 05464	1° 52975	70° 049	4 10 34° 38
19	1° 19950	1° 63180	0° 05576	1° 52950	70° 561	4 6 38° 47
20	1° 19150	1° 62998	0° 05687	1° 52924	71° 076	4 2 42° 56
21	1° 18343	1° 62808	0° 05797	1° 52897	71° 596	3 58 46° 65
22	1° 17528	1° 62611	0° 05904	1° 52870	72° 120	3 54 50° 74
23	1° 16709	1° 62409	0° 06010	1° 52843	72° 648	3 50 54° 83
24	1° 15884	1° 62200	0° 06115	1° 52815	73° 179	3 46 58° 92
25	1° 15053	1° 61983	0° 06219	1° 52787	73° 714	3 43 3° 01
26	1° 14218	1° 61762	0° 06321	1° 52759	74° 250	3 39 7° 10
27	1° 13378	1° 61534	0° 06422	1° 52730	74° 789	3 35 11° 19
28	1° 12532	1° 61298	0° 06522	1° 52701	75° 331	3 31 15° 28
29	1° 11683	1° 61058	0° 06621	1° 52672	75° 875	3 27 19° 37
30	1° 10829	1° 60811	0° 06718	1° 52642	76° 422	3 23 23° 46
31	1° 09971	1° 60556	0° 06813	1° 52612	76° 971	3 19 27° 55
32	1° 09110	1° 60295	0° 06907	1° 52582	77° 521	3 15 31° 64

Day of the Month.	BESSEL's Day Numbers— For correcting the Places of the Fixed Stars.				Days elapsed of the Julian Period at Mean Noon.	Mean Equinoctial Time, adding 0 ^d . 511897. Days.	From Mean Noon of January 1.	
	At Mean Midnight,						Day of the Year.	Fraction of the Year.*
	Logarithms of							
	A	B	C	D				
1	−0.5511	+1.3026	−9.0756	+0.9604	2403333	284	0	.0000
2	0.5893	1.3011	9.0635	0.9599	2403334	285	1	.0027
3	0.6243	1.2994	9.0512	0.9594	2403335	286	2	.0055
4	−0.6565	+1.2975	−9.0385	+0.9588	2403336	287	3	.0082
5	0.6864	1.2955	9.0255	0.9582	2403337	288	4	.0110
6	0.7142	1.2934	9.0121	0.9575	2403338	289	5	.0137
7	−0.7402	+1.2911	−8.9984	+0.9569	2403339	290	6	.0164
8	0.7646	1.2886	8.9844	0.9562	2403340	291	7	.0192
9	0.7876	1.2860	8.9700	0.9554	2403341	292	8	.0219
10	−0.8093	+1.2833	−8.9551	+0.9547	2403342	293	9	.0246
11	0.8299	1.2804	8.9399	0.9539	2403343	294	10	.0274
12	0.8493	1.2773	8.9242	0.9531	2403344	295	11	.0301
13	−0.8678	+1.2741	−8.9080	+0.9522	2403345	296	12	.0329
14	0.8854	1.2707	8.8913	0.9514	2403346	297	13	.0356
15	0.9022	1.2672	8.8741	0.9505	2403347	298	14	.0383
16	−0.9183	+1.2635	−8.8564	+0.9496	2403348	299	15	.0411
17	0.9336	1.2596	8.8380	0.9486	2403349	300	16	.0438
18	0.9483	1.2555	8.8190	0.9477	2403350	301	17	.0465
19	−0.9623	+1.2513	−8.7993	+0.9467	2403351	302	18	.0493
20	0.9758	1.2469	8.7788	0.9457	2403352	303	19	.0520
21	0.9888	1.2423	8.7576	0.9447	2403353	304	20	.0548
22	−1.0012	+1.2375	−8.7354	+0.9437	2403354	305	21	.0575
23	1.0132	1.2325	8.7125	0.9426	2403355	306	22	.0602
24	1.0247	1.2273	8.6885	0.9415	2403356	307	23	.0630
25	−1.0357	+1.2220	−8.6633	+0.9404	2403357	308	24	.0657
26	1.0464	1.2164	8.6368	0.9393	2403358	309	25	.0684
27	1.0566	1.2106	8.6089	0.9382	2403359	310	26	.0712
28	−1.0665	+1.2046	−8.5793	+0.9371	2403360	311	27	.0739
29	1.0761	1.1984	8.5481	0.9360	2403361	312	28	.0767
30	1.0853	1.1920	8.5150	0.9348	2403362	313	29	.0794
31	1.0941	1.1853	8.4796	0.9337	2403363	314	30	.0821
32	−1.1027	+1.1784	−8.4414	+0.9325	2403364	315	31	.0849

* Add .0012 if Fraction be required for the time t, see page 329.

* Add .0012 if Fraction be required for the time *t*, see page 329.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be added to Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
		^h ^m ^s	^s	[°] ['] ["]	["]	^m ^s	^m ^s	^s
Sat.	1	20 57 46.28	10.201	S. 17 12 38.8	42.41	1 8.31	13 47.77	0.344
Sun.	2	21 1 50.69	10.166	16 55 31.8	43.16	1 8.19	13 55.60	0.309
Mon.	3	21 5 54.25	10.131	16 38 7.2	43.89	1 8.07	14 2.59	0.274
Tues.	4	21 9 56.98	10.096	16 20 25.3	44.60	1 7.96	14 8.75	0.239
Wed.	5	21 13 58.88	10.061	16 2 26.5	45.29	1 7.84	14 14.08	0.205
Thur.	6	21 17 59.93	10.027	15 44 11.2	45.97	1 7.73	14 18.57	0.170
Frid.	7	21 22 0.16	9.993	15 25 39.9	46.63	1 7.61	14 22.23	0.136
Sat.	8	21 25 59.58	9.959	15 6 53.0	47.28	1 7.50	14 25.09	0.103
Sun.	9	21 29 58.21	9.926	14 47 50.7	47.90	1 7.39	14 27.16	0.070
Mon.	10	21 33 56.05	9.894	14 28 33.6	48.51	1 7.28	14 28.44	0.037
Tues.	11	21 37 53.10	9.862	14 9 2.0	49.11	1 7.17	14 28.94	0.005
Wed.	12	21 41 49.39	9.830	13 49 16.4	49.69	1 7.06	14 28.68	0.025
Thur.	13	21 45 44.94	9.799	13 29 17.0	50.25	1 6.95	14 27.69	0.057
Frid.	14	21 49 39.76	9.769	13 9 4.4	50.79	1 6.84	14 25.95	0.086
Sat.	15	21 53 33.86	9.739	12 48 38.9	51.32	1 6.74	14 23.49	0.117
Sun.	16	21 57 27.23	9.709	12 28 0.9	51.83	1 6.63	14 20.32	0.146
Mon.	17	22 1 19.90	9.680	12 7 11.0	52.32	1 6.52	14 16.46	0.175
Tues.	18	22 5 11.88	9.652	11 46 9.4	52.80	1 6.42	14 11.90	0.204
Wed.	19	22 9 3.18	9.624	11 24 56.7	53.25	1 6.32	14 6.67	0.232
Thur.	20	22 12 53.82	9.596	11 3 33.2	53.69	1 6.22	14 0.76	0.260
Frid.	21	22 16 43.80	9.569	10 41 59.4	54.12	1 6.13	13 54.19	0.287
Sat.	22	22 20 33.13	9.542	10 20 15.6	54.52	1 6.04	13 46.98	0.314
Sun.	23	22 24 21.81	9.516	9 58 22.4	54.91	1 5.95	13 39.14	0.340
Mon.	24	22 28 9.88	9.490	9 36 20.1	55.27	1 5.86	13 30.68	0.365
Tues.	25	22 31 57.34	9.465	9 14 9.2	55.62	1 5.77	13 21.61	0.390
Wed.	26	22 35 44.20	9.440	8 51 50.0	55.96	1 5.69	13 11.95	0.415
Thur.	27	22 39 30.48	9.416	8 29 23.0	56.28	1 5.61	13 1.70	0.439
Frid.	28	22 43 16.19	9.393	8 6 48.6	56.58	1 5.53	12 50.89	0.462
Sat.	29	22 47 1.35	9.371	7 44 7.1	56.86	1 5.45	12 39.53	0.484
Sun.	30	22 50 45.99	9.349	S. 7 21 19.1	57.13	1 5.37	12 27.64	0.506

Mean Time of the Semidiameter passing may be found by subtracting 0.18 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be subtracted from Mean Time.	Sidereal Time.
		Apparent Right Ascension.	Apparent Declination.	Semidiam.*		
		h m s	° ' "	' "	m s	h m s
Sat.	1	20 57 43.93	S. 17 12 48.5	16 15.9	13 47.69	20 43 56.24
Sun.	2	21 1 48.33	16 55 41.8	16 15.7	13 55.53	20 47 52.80
Mon.	3	21 5 51.88	16 38 17.4	16 15.5	14 2.53	20 51 49.35
Tues.	4	21 9 54.60	16 20 35.8	16 15.4	14 8.70	20 55 45.90
Wed.	5	21 13 56.49	16 2 37.3	16 15.3	14 14.03	20 59 42.46
Thur.	6	21 17 57.54	15 44 22.2	16 15.1	14 18.53	21 3 39.01
Frid.	7	21 21 57.77	15 25 51.1	16 15.0	14 22.20	21 7 35.57
Sat.	8	21 25 57.19	15 7 4.4	16 14.8	14 25.07	21 11 32.12
Sun.	9	21 29 55.82	14 48 2.3	16 14.6	14 27.14	21 15 28.68
Mon.	10	21 33 53.66	14 28 45.3	16 14.4	14 28.43	21 19 25.23
Tues.	11	21 37 50.72	14 9 13.9	16 14.2	14 28.94	21 23 21.78
Wed.	12	21 41 47.02	13 49 28.3	16 14.0	14 28.69	21 27 18.33
Thur.	13	21 45 42.58	13 29 29.1	16 13.8	14 27.70	21 31 14.88
Frid.	14	21 49 37.41	13 9 16.6	16 13.6	14 25.97	21 35 11.44
Sat.	15	21 53 31.52	12 48 51.2	16 13.4	14 23.52	21 39 8.00
Sun.	16	21 57 24.91	12 28 13.3	16 13.2	14 20.36	21 43 4.55
Mon.	17	22 1 17.60	12 7 23.4	16 13.0	14 16.50	21 47 1.10
Tues.	18	22 5 9.60	11 46 21.9	16 12.8	14 11.95	21 50 57.65
Wed.	19	22 9 0.92	11 25 9.2	16 12.6	14 6.72	21 54 54.20
Thur.	20	22 12 51.58	11 3 45.7	16 12.4	14 0.82	21 58 50.76
Frid.	21	22 16 41.58	10 42 11.9	16 12.2	13 54.26	22 2 47.32
Sat.	22	22 20 30.93	10 20 28.2	16 11.9	13 47.06	22 6 43.87
Sun.	23	22 24 19.64	9 58 35.0	16 11.7	13 39.22	22 10 40.42
Mon.	24	22 28 7.74	9 36 32.6	16 11.5	13 30.76	22 14 36.98
Tues.	25	22 31 55.23	9 14 21.5	16 11.2	13 21.70	22 18 33.53
Wed.	26	22 35 42.12	8 52 2.3	16 11.0	13 12.04	22 22 30.08
Thur.	27	22 39 28.43	8 29 35.2	16 10.8	13 1.80	22 26 26.63
Frid.	28	22 43 14.17	8 7 0.7	16 10.5	12 50.99	22 30 23.18
Sat.	29	22 46 59.37	7 44 19.1	16 10.3	12 39.63	22 34 19.74
Sun.	30	22 50 44.04	S. 7 21 30.9	16 10.0	12 27.75	22 38 16.29

* The Semidiameter for Apparent Noon may be assumed the same as that for Mean Noon.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	311 58 5.5	S. 0° 66	9.9936917	15 39.1	15 45.9	57 20.5	57 45.5
2	312 58 57.2	0° 69	9.9937554	15 52.9	16 0.0	58 11.2	58 37.3
3	313 59 47.5	0° 71	9.9938212	16 7.2	16 14.1	59 3.4	59 28.9
4	315 0 36.4	0° 69	9.9938889	16 20.7	16 26.9	59 53.2	60 15.6
5	316 1 23.8	0° 64	9.9939588	16 32.3	16 36.8	60 35.4	60 52.1
6	317 2 9.8	0° 55	9.9940313	16 40.3	16 42.6	61 4.9	61 13.4
7	318 2 54.3	0° 44	9.9941063	16 43.7	16 43.4	61 17.2	61 16.1
8	319 3 37.4	0° 30	9.9941836	16 41.7	16 38.7	61 10.0	60 59.1
9	320 4 19.2	0° 16	9.9942635	16 34.5	16 29.2	60 43.7	60 24.3
10	321 4 59.6	S. 0° 01	9.9943458	16 23.0	16 16.0	60 1.4	59 35.9
11	322 5 38.8	N. 0° 12	9.9944302	16 8.5	16 0.7	59 8.4	58 39.7
12	323 6 16.8	0° 24	9.9945167	15 52.7	15 44.7	58 10.4	57 41.1
13	324 6 53.7	0° 33	9.9946053	15 36.9	15 29.4	57 12.5	56 45.0
14	325 7 29.4	0° 39	9.9946958	15 22.3	15 15.7	56 19.1	55 55.0
15	326 8 4.0	0° 43	9.9947881	15 9.7	15 4.3	55 32.9	55 13.2
16	327 8 37.4	0° 44	9.9948819	14 59.6	14 55.5	54 55.8	54 40.8
17	328 9 9.5	0° 42	9.9949770	14 52.0	14 49.3	54 28.2	54 18.0
18	329 9 40.3	0° 38	9.9950733	14 47.1	14 45.6	54 10.2	54 4.6
19	330 10 9.8	0° 32	9.9951708	14 44.6	14 44.3	54 1.1	53 59.7
20	331 10 37.9	0° 25	9.9952694	14 44.4	14 44.9	54 0.1	54 2.2
21	332 11 4.4	0° 15	9.9953689	14 46.0	14 47.3	54 5.9	54 11.0
22	333 11 29.4	N. 0° 04	9.9954693	14 49.1	14 51.2	54 17.4	54 25.0
23	334 11 52.7	S. 0° 07	9.9955705	14 53.5	14 56.2	54 33.7	54 43.3
24	335 12 14.3	0° 18	9.9956725	14 59.1	15 2.2	54 53.9	55 5.3
25	336 12 34.1	0° 29	9.9957751	15 5.5	15 9.0	55 17.5	55 30.5
26	337 12 52.0	0° 40	9.9958785	15 12.8	15 16.8	55 44.3	55 58.9
27	338 13 8.1	0° 50	9.9959826	15 21.0	15 25.4	56 14.3	56 30.5
28	339 13 22.2	0° 58	9.9960875	15 30.1	15 34.9	56 47.5	57 5.2
29	340 13 34.3	0° 62	9.9961930	15 39.9	15 45.1	57 23.6	57 42.6
30	341 13 44.4	S. 0° 64	9.9962994	15 50.4	15 55.8	58 2.1	58 21.8

MEAN TIME.

THE MOON'S

		THE MOON'S							
Day of the Week.	Day of the Month.	Longitude.		Latitude.		Age.	Meridian		
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.		
		° ' "	° ' "	° ' "	° ' "	d	h	m	
Sat.	1	38 45 28.8	45 26 27.3	S. 4 42 50.2	S. 4 57 12.2	7.7	5	59.7	
Sun.	2	52 13 38.5	59 7 14.4	5 7 40.1	5 13 54.1	8.7	6	51.4	
Mon.	3	66 7 19.6	73 13 50.7	5 15 36.1	5 12 31.9	9.7	7	46.5	
Tues.	4	80 26 34.4	87 45 6.7	5 4 31.1	4 51 29.3	10.7	8	45.0	
Wed.	5	95 8 52.6	102 37 6.4	4 33 28.7	4 10 39.1	11.7	9	46.0	
Thur.	6	110 8 52.3	117 43 6.1	3 43 18.7	3 11 53.9	12.7	10	48.0	
Frid.	7	125 18 37.6	132 54 12.7	2 36 59.3	1 59 16.3	13.7	11	49.2	
Sat.	8	140 28 37.7	148 0 40.1	S. 1 19 31.0	S. 0 38 33.1	14.7	12	48.2	
Sun.	9	155 29 13.6	162 53 18.7	N. 0 2 47.1	N. 0 43 41.0	15.7	13	44.4	
Mon.	10	170 12 6.0	177 24 55.6	1 23 23.3	2 1 13.3	16.7	14	37.9	
Tues.	11	184 31 19.1	191 30 58.7	2 36 36.4	3 9 4.2	17.7	15	29.0	
Wed.	12	198 23 46.4	205 9 44.1	3 38 14.8	4 3 52.0	18.7	16	18.4	
Thur.	13	211 49 1.0	218 21 53.8	4 25 44.7	4 43 46.9	19.7	17	6.8	
Frid.	14	224 48 44.5	231 9 59.3	4 57 56.0	5 8 12.4	20.7	17	54.7	
Sat.	15	237 26 7.6	243 37 40.9	5 14 38.9	5 17 20.2	21.7	18	42.4	
Sun.	16	249 45 12.0	255 49 14.2	5 16 22.2	5 11 52.1	22.7	19	30.1	
Mon.	17	261 50 20.5	267 49 3.7	5 3 57.9	4 52 48.3	23.7	20	17.8	
Tues.	18	273 45 54.8	279 41 24.0	4 38 32.6	4 21 21.2	24.7	21	5.3	
Wed.	19	285 36 0.0	291 30 8.8	4 1 24.9	3 38 55.5	25.7	21	52.4	
Thur.	20	297 24 15.2	303 18 42.1	3 14 5.9	2 47 10.0	26.7	22	38.8	
Frid.	21	309 13 50.1	315 9 58.5	2 18 22.7	1 48 0.2	27.7	23	24.6	
Sat.	22	321 7 24.4	327 6 23.5	1 16 20.2	N. 0 43 41.2	28.7	6		
Sun.	23	333 7 10.7	339 9 59.0	N. 0 10 23.0	S. 0 23 13.5	29.7	0	9.6	
Mon.	24	345 15 1.1	351 22 28.7	S. 0 56 46.3	1 29 53.0	0.9	0	54.2	
Tues.	25	357 32 33.3	3 45 26.0	2 2 10.7	2 33 15.9	1.9	1	38.6	
Wed.	26	10 1 18.2	16 20 21.0	3 2 45.2	3 30 15.4	2.9	2	23.5	
Thur.	27	22 42 46.0	29 8 45.1	3 55 23.8	4 17 48.0	3.9	3	9.4	
Frid.	28	35 38 29.7	42 12 11.1	4 37 7.1	4 53 1.2	4.9	3	56.9	
Sat.	29	48 50 0.5	55 32 7.5	5 5 11.5	5 13 21.6	5.9	4	46.7	
Sun.	30	62 18 40.4	69 9 44.6	S. 5 17 17.0	S. 5 16 46.3	6.9	5	39.1	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 1.				MONDAY 3.			
0	h m s	N. ° ' "	"	0	h m s	N. ° ' "	"
1	2 31 36.81	9 57 30.5	91.33	1	4 20 44.78	16 9 34.2	59.45
2	2 33 46.06	10 6 37.3	90.92	2	4 23 9.13	16 15 28.1	58.52
3	2 35 55.59	10 15 41.6	90.50	3	4 25 33.80	16 21 16.4	57.57
4	2 38 5.39	10 24 43.3	90.07	4	4 27 58.80	16 26 58.9	56.60
5	2 40 15.48	10 33 42.4	89.63	5	4 30 24.12	16 32 35.6	55.63
6	2 42 25.85	10 42 38.8	89.17	6	4 32 49.77	16 38 6.5	54.65
7	2 44 36.50	10 51 32.4	88.70	7	4 35 15.74	16 43 31.4	53.65
8	2 46 47.44	11 0 23.2	88.23	8	4 37 42.03	16 48 50.3	52.64
9	2 48 58.67	11 9 11.2	87.76	9	4 40 8.64	16 54 3.1	51.62
10	2 51 10.19	11 17 56.3	87.26	10	4 42 35.56	16 59 9.7	50.58
11	2 53 22.00	11 26 38.3	86.75	11	4 45 2.80	17 4 10.1	49.55
12	2 55 34.11	11 35 17.3	86.23	12	4 47 30.36	17 9 4.3	48.50
13	2 57 46.52	11 43 53.1	85.71	13	4 49 58.23	17 13 52.1	47.43
14	2 59 59.23	11 52 25.8	85.18	14	4 52 26.41	17 18 33.5	46.36
15	3 2 12.24	12 0 55.2	84.63	15	4 54 54.89	17 23 8.5	45.28
16	3 4 25.56	12 9 21.3	84.08	16	4 57 23.68	17 27 36.9	44.18
17	3 6 39.18	12 17 44.1	83.51	17	4 59 52.76	17 31 58.7	43.08
18	3 8 53.11	12 26 3.4	82.93	18	5 2 22.15	17 36 13.9	41.97
19	3 11 7.35	12 34 19.2	82.33	19	5 4 51.84	17 40 22.4	40.84
20	3 13 21.90	12 42 31.4	81.73	20	5 7 21.81	17 44 24.0	39.70
21	3 15 36.76	12 50 40.0	81.12	21	5 9 52.08	17 48 18.8	38.56
22	3 17 51.94	12 58 44.9	80.50	22	5 12 22.63	17 52 6.7	37.41
23	3 20 7.44	13 6 46.0	79.87	23	5 14 53.46	17 55 47.7	36.24
24	3 22 23.25	N. 13 14 43.3	79.23	24	5 17 24.58	N. 17 59 21.6	35.06
SUNDAY 2.				TUESDAY 4.			
0	3 24 39.39	N. 13 22 36.8	78.58	0	5 19 55.97	N. 18 2 48.5	33.88
1	3 26 55.84	13 30 26.3	77.91	1	5 22 27.64	18 6 8.2	32.68
2	3 29 12.62	13 38 11.7	77.23	2	5 24 59.57	18 9 20.7	31.48
3	3 31 29.72	13 45 53.0	76.54	3	5 27 31.77	18 12 26.0	30.27
4	3 33 47.15	13 53 30.2	75.84	4	5 30 4.24	18 15 24.0	29.05
5	3 36 4.90	14 1 3.1	75.13	5	5 32 36.96	18 18 14.6	27.82
6	3 38 22.98	14 8 31.7	74.41	6	5 35 9.93	18 20 57.8	26.58
7	3 40 41.39	14 15 56.0	73.68	7	5 37 43.15	18 23 33.5	25.33
8	3 43 0.12	14 23 15.8	72.93	8	5 40 16.62	18 26 1.8	24.08
9	3 45 19.18	14 30 31.1	72.18	9	5 42 50.32	18 28 22.5	22.81
10	3 47 38.57	14 37 41.9	71.41	10	5 45 24.26	18 30 35.5	21.53
11	3 49 58.29	14 44 48.0	70.63	11	5 47 58.43	18 32 40.9	20.26
12	3 52 18.34	14 51 49.5	69.85	12	5 50 32.82	18 34 38.7	18.98
13	3 54 38.72	14 58 46.2	69.04	13	5 53 7.43	18 36 28.7	17.68
14	3 56 59.44	15 5 38.0	68.22	14	5 55 42.26	18 38 10.9	16.38
15	3 59 20.48	15 12 24.8	67.39	15	5 58 17.30	18 39 45.3	15.07
16	4 1 41.86	15 19 6.7	66.56	16	6 0 52.55	18 41 11.8	13.76
17	4 4 3.57	15 25 43.6	65.72	17	6 3 27.99	18 42 30.5	12.45
18	4 6 25.61	15 32 15.3	64.85	18	6 6 3.63	18 43 41.2	11.12
19	4 8 47.98	15 38 41.8	63.98	19	6 8 39.45	18 44 43.9	9.78
20	4 11 10.68	15 45 3.1	63.11	20	6 11 15.46	18 45 38.6	8.45
21	4 13 33.71	15 51 19.1	62.21	21	6 13 51.64	18 46 25.3	7.11
22	4 15 57.07	15 57 29.6	61.30	22	6 16 27.99	18 47 3.9	5.77
23	4 18 20.76	16 3 34.7	60.38	23	6 19 4.51	18 47 34.5	4.42
24	4 20 44.78	N. 16 9 34.2	59.45	24	6 21 41.19	N. 18 47 56.9	3.06

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 5.				FRIDAY 7.			
0	^h 6 ^m 21 ^s 41.19	N. 18° 47' 56".9	3.06	0	^h 8 ^m 28 ^s 2.07	N. 16° 24' 50".0	61.51
1	6 24 18.02	18 48 11.2	1.69	1	8 30 38.62	16 18 37.3	62.73
2	6 26 55.00	18 48 17.2	0.32	2	8 33 15.02	16 12 17.3	63.92
3	6 29 32.12	18 48 15.1	1.04	3	8 35 51.26	16 5 50.2	65.10
4	6 32 9.38	18 48 4.7	2.41	4	8 38 27.33	15 59 16.1	66.28
5	6 34 46.76	18 47 46.1	3.78	5	8 41 3.23	15 52 34.9	67.45
6	6 37 24.26	18 47 19.3	5.16	6	8 43 38.95	15 45 46.7	68.61
7	6 40 1.88	18 46 44.2	6.55	7	8 46 14.50	15 38 51.6	69.74
8	6 42 39.61	18 46 0.7	7.93	8	8 48 49.86	15 31 49.8	70.87
9	6 45 17.45	18 45 9.0	9.31	9	8 51 25.04	15 24 41.2	71.99
10	6 47 55.38	18 44 9.0	10.70	10	8 54 0.02	15 17 25.9	73.10
11	6 50 33.39	18 43 0.6	12.09	11	8 56 34.80	15 10 4.0	74.19
12	6 53 11.49	18 41 43.9	13.48	12	8 59 9.38	15 2 35.6	75.27
13	6 55 49.67	18 40 18.9	14.87	13	9 1 43.76	14 55 0.7	76.34
14	6 58 27.91	18 38 45.5	16.26	14	9 4 17.93	14 47 19.5	77.39
15	7 1 6.22	18 37 3.8	17.65	15	9 6 51.89	14 39 32.0	78.43
16	7 3 44.59	18 35 13.7	19.04	16	9 9 25.63	14 31 38.3	79.47
17	7 6 23.00	18 33 15.3	20.43	17	9 11 59.16	14 23 38.4	80.49
18	7 9 1.45	18 31 8.6	21.82	18	9 14 32.46	14 15 32.4	81.49
19	7 11 39.94	18 28 53.5	23.20	19	9 17 5.53	14 7 20.5	82.48
20	7 14 18.46	18 26 30.2	24.58	20	9 19 38.38	13 59 2.7	83.45
21	7 16 57.00	18 23 58.5	25.97	21	9 22 10.99	13 50 39.1	84.41
22	7 19 35.56	18 21 18.5	27.35	22	9 24 43.37	13 42 9.8	85.35
23	7 22 14.12	N. 18° 18' 30".3	28.73	23	9 27 15.52	N. 13° 33' 34".9	86.28
THURSDAY 6.				SATURDAY 8.			
0	7 24 52.69	N. 18° 15' 33".7	30.11	0	9 29 47.42	N. 13° 24' 54".4	87.20
1	7 27 31.25	18 12 28.9	31.48	1	9 32 19.08	13 16 8.5	88.10
2	7 30 9.80	18 9 15.9	32.85	2	9 34 50.49	13 7 17.2	88.99
3	7 32 48.33	18 5 54.7	34.22	3	9 37 21.65	12 58 20.6	89.87
4	7 35 26.84	18 2 25.3	35.58	4	9 39 52.56	12 49 18.8	90.73
5	7 38 5.32	17 58 47.7	36.93	5	9 42 23.22	12 40 11.9	91.57
6	7 40 43.76	17 55 2.1	38.28	6	9 44 53.63	12 31 0.0	92.39
7	7 43 22.15	17 51 8.3	39.64	7	9 47 23.78	12 21 43.2	93.20
8	7 46 0.50	17 47 6.4	40.98	8	9 49 53.68	12 12 21.6	94.00
9	7 48 38.79	17 42 56.5	42.32	9	9 52 23.31	12 2 55.2	94.78
10	7 51 17.01	17 38 38.5	43.66	10	9 54 52.69	11 53 24.2	95.55
11	7 53 55.16	17 34 12.6	44.98	11	9 57 21.80	11 43 48.6	96.31
12	7 56 33.24	17 29 38.8	46.29	12	9 59 50.65	11 34 8.5	97.05
13	7 59 11.24	17 24 57.1	47.61	13	10 2 19.23	11 24 24.0	97.77
14	8 1 49.15	17 20 7.5	48.92	14	10 4 47.55	11 14 35.3	98.46
15	8 4 26.96	17 15 10.1	50.22	15	10 7 15.61	11 4 42.5	99.15
16	8 7 4.67	17 10 4.9	51.51	16	10 9 43.39	10 54 45.5	99.83
17	8 9 42.28	17 4 52.0	52.79	17	10 12 10.91	10 44 44.5	100.49
18	8 12 19.77	16 59 31.4	54.06	18	10 14 38.16	10 34 39.6	101.13
19	8 14 57.15	16 54 3.3	55.33	19	10 17 5.14	10 24 30.9	101.76
20	8 17 34.40	16 48 27.5	56.59	20	10 19 31.85	10 14 18.5	102.37
21	8 20 11.53	16 42 44.2	57.83	21	10 21 58.29	10 4 2.5	102.96
22	8 22 48.52	16 36 53.5	59.06	22	10 24 24.46	9 53 43.0	103.54
23	8 25 25.37	16 30 55.4	60.29	23	10 26 50.35	9 43 20.0	104.11
24	8 28 2.07	N. 16° 24' 50".0	61.51	24	10 29 15.98	N. 9° 32' 53".7	104.66

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SUNDAY 9.				TUESDAY 11.			
0	h m s	° ' "	"	0	h m s	° ' "	"
0	10 29 15.98	N. 9 32 53.7	104.66	0	12 20 44.55	N. 0 35 51.3	113.75
1	10 31 41.34	9 22 24.1	105.19	1	12 22 58.27	0 24 29.2	113.61
2	10 34 6.42	9 11 51.4	105.70	2	12 25 11.79	0 13 8.0	113.47
3	10 36 31.24	9 1 15.7	106.20	3	12 27 25.11	N. 0 1 47.6	113.31
4	10 38 55.78	8 50 37.0	106.69	4	12 29 38.25	S. 0 9 31.8	113.14
5	10 41 20.05	8 39 55.4	107.17	5	12 31 51.20	0 20 50.1	112.96
6	10 43 44.06	8 29 11.0	107.63	6	12 34 3.97	0 32 7.4	112.78
7	10 46 7.80	8 18 23.9	108.06	7	12 36 16.56	0 43 23.5	112.58
8	10 48 31.26	8 7 34.3	108.48	8	12 38 28.96	0 54 38.4	112.38
9	10 50 54.46	7 56 42.2	108.89	9	12 40 41.19	1 5 52.1	112.16
10	10 53 17.40	7 45 47.6	109.29	10	12 42 53.24	1 17 4.4	111.92
11	10 55 40.06	7 34 50.7	109.67	11	12 45 5.12	1 28 15.2	111.68
12	10 58 2.46	7 23 51.6	110.03	12	12 47 16.83	1 39 24.6	111.44
13	11 0 24.60	7 12 50.4	110.38	13	12 49 28.37	1 50 32.5	111.18
14	11 2 46.47	7 1 47.1	110.71	14	12 51 39.75	2 1 38.8	110.91
15	11 5 8.08	6 50 41.9	111.03	15	12 53 50.96	2 12 43.4	110.63
16	11 7 29.43	6 39 34.8	111.33	16	12 56 2.02	2 23 46.3	110.34
17	11 9 50.53	6 28 26.0	111.61	17	12 58 12.92	2 34 47.5	110.04
18	11 12 11.36	6 17 15.5	111.89	18	13 0 23.66	2 45 46.8	109.73
19	11 14 31.94	6 6 3.3	112.15	19	13 2 34.25	2 56 44.3	109.42
20	11 16 52.26	5 54 49.6	112.39	20	13 4 44.70	3 7 39.9	109.10
21	11 19 12.33	5 43 34.6	112.62	21	13 6 54.99	3 18 33.5	108.77
22	11 21 32.14	5 32 18.2	112.84	22	13 9 5.14	3 29 25.1	108.42
23	11 23 51.70	N. 5 21 0.5	113.04	23	13 11 15.15	S. 3 40 14.5	108.06
MONDAY 10.				WEDNESDAY 12.			
0	11 26 11.02	N. 5 9 41.7	113.23	0	13 13 25.02	S. 3 51 1.8	107.70
1	11 28 30.08	4 58 21.8	113.40	1	13 15 34.75	4 1 46.9	107.33
2	11 30 48.90	4 47 0.9	113.56	2	13 17 44.35	4 12 29.8	106.96
3	11 33 7.47	4 35 39.1	113.71	3	13 19 53.82	4 23 10.4	106.58
4	11 35 25.80	4 24 16.4	113.84	4	13 22 3.16	4 33 48.7	106.18
5	11 37 43.89	4 12 53.0	113.96	5	13 24 12.37	4 44 24.6	105.78
6	11 40 1.74	4 1 28.9	114.06	6	13 26 21.45	4 54 58.1	105.36
7	11 42 19.35	3 50 4.3	114.15	7	13 28 30.41	5 5 29.0	104.94
8	11 44 36.73	3 38 39.1	114.23	8	13 30 39.26	5 15 57.4	104.52
9	11 46 53.87	3 27 13.5	114.29	9	13 32 47.98	5 26 23.3	104.09
10	11 49 10.78	3 15 47.6	114.34	10	13 34 56.59	5 36 46.5	103.65
11	11 51 27.47	3 4 21.4	114.38	11	13 37 5.09	5 47 7.1	103.20
12	11 53 43.93	2 52 55.1	114.40	12	13 39 13.47	5 57 24.9	102.74
13	11 56 0.16	2 41 28.6	114.42	13	13 41 21.75	6 7 40.0	102.27
14	11 58 16.17	2 30 2.1	114.41	14	13 43 29.92	6 17 52.2	101.80
15	12 0 31.97	2 18 35.7	114.40	15	13 45 37.99	6 28 1.6	101.32
16	12 2 47.54	2 7 9.3	114.38	16	13 47 45.96	6 38 8.2	100.85
17	12 5 2.90	1 55 43.1	114.33	17	13 49 53.83	6 48 11.8	100.38
18	12 7 18.04	1 44 17.3	114.28	18	13 52 1.60	6 58 12.4	99.89
19	12 9 32.97	1 32 51.7	114.23	19	13 54 9.28	7 8 10.0	99.39
20	12 11 47.70	1 21 26.5	114.16	20	13 56 16.87	7 18 4.6	98.84
21	12 14 2.22	1 10 1.8	114.07	21	13 58 24.36	7 27 56.1	98.34
22	12 16 16.53	0 58 37.7	113.97	22	14 0 31.77	7 37 44.4	97.79
23	12 18 30.64	0 47 14.2	113.87	23	14 2 39.09	7 47 29.6	97.24
24	12 20 44.55	N. 0 35 51.3	113.75	24	14 4 46.33	S. 7.57 11.5	96.70

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
THURSDAY 13.				SATURDAY 15.			
0	14 4 46.33	S. 7 57 11.5	96.72	0	15 45 32.51	S. 14 29 19.1	64.92
1	14 6 53.49	8 6 50.2	96.17	1	15 47 37.82	14 35 46.4	64.17
2	14 9 0.57	8 16 25.6	95.62	2	15 49 43.12	14 42 9.1	63.41
3	14 11 7.57	8 25 57.7	95.07	3	15 51 48.41	14 48 27.3	62.64
4	14 13 14.50	8 35 26.5	94.51	4	15 53 53.69	14 54 40.8	61.87
5	14 15 21.35	8 44 51.8	93.93	5	15 55 58.97	15 0 49.7	61.09
6	14 17 28.14	8 54 13.7	93.36	6	15 58 4.25	15 6 53.9	60.31
7	14 19 34.85	9 3 32.2	92.79	7	16 0 9.52	15 12 53.5	59.54
8	14 21 41.50	9 12 47.2	92.20	8	16 2 14.79	15 18 48.4	58.76
9	14 23 48.09	9 21 58.6	91.61	9	16 4 20.06	15 24 38.6	57.98
10	14 25 54.61	9 31 6.5	91.01	10	16 6 25.32	15 30 24.1	57.19
11	14 28 1.07	9 40 10.7	90.41	11	16 8 30.58	15 36 4.9	56.40
12	14 30 7.48	9 49 11.4	89.81	12	16 10 35.84	15 41 40.9	55.61
13	14 32 13.83	9 58 8.4	89.19	13	16 12 41.10	15 47 12.2	54.82
14	14 34 20.12	10 7 1.7	88.57	14	16 14 46.36	15 52 38.7	54.02
15	14 36 26.36	10 15 51.3	87.95	15	16 16 51.62	15 58 0.4	53.22
16	14 38 32.54	10 24 37.1	87.32	16	16 18 56.88	16 3 17.3	52.41
17	14 40 38.68	10 33 19.1	86.68	17	16 21 2.14	16 8 29.3	51.60
18	14 42 44.77	10 41 57.3	86.05	18	16 23 7.41	16 13 36.5	50.80
19	14 44 50.81	10 50 31.7	85.41	19	16 25 12.67	16 18 38.9	50.00
20	14 46 56.81	10 59 2.2	84.76	20	16 27 17.94	16 23 36.5	49.18
21	14 49 2.77	11 7 28.8	84.11	21	16 29 23.21	16 28 29.1	48.36
22	14 51 8.68	11 15 51.5	83.45	22	16 31 28.48	16 33 16.9	47.55
23	14 53 14.55	S. 11 24 10.2	82.79	23	16 33 33.75	S. 16 37 59.7	46.73
FRIDAY 14.				SUNDAY 16.			
0	14 55 20.38	S. 11 32 25.0	82.12	0	16 35 39.02	S. 16 42 37.6	45.91
1	14 57 26.18	11 40 35.7	81.45	1	16 37 44.30	16 47 10.6	45.09
2	14 59 31.94	11 48 42.4	80.78	2	16 39 49.58	16 51 38.7	44.27
3	15 1 37.67	11 56 45.1	80.10	3	16 41 54.86	16 56 1.8	43.44
4	15 3 43.36	12 4 43.6	79.41	4	16 44 0.15	17 0 20.0	42.61
5	15 5 49.03	12 12 38.0	78.73	5	16 46 5.43	17 4 33.2	41.78
6	15 7 54.67	12 20 28.3	78.04	6	16 48 10.72	17 8 41.3	40.94
7	15 10 0.27	12 28 14.5	77.34	7	16 50 16.02	17 12 44.5	40.11
8	15 12 5.85	12 35 56.4	76.63	8	16 52 21.31	17 16 42.7	39.28
9	15 14 11.41	12 43 34.1	75.93	9	16 54 26.61	17 20 35.9	38.44
10	15 16 16.94	12 51 7.6	75.23	10	16 56 31.91	17 24 24.0	37.60
11	15 18 22.45	12 58 36.8	74.52	11	16 58 37.22	17 28 7.1	36.76
12	15 20 27.94	13 6 1.8	73.81	12	17 0 42.52	17 31 45.1	35.92
13	15 22 33.41	13 13 22.5	73.08	13	17 2 47.83	17 35 18.1	35.08
14	15 24 38.85	13 20 38.8	72.35	14	17 4 53.13	17 38 46.0	34.23
15	15 26 44.28	13 27 50.7	71.63	15	17 6 58.44	17 42 8.9	33.38
16	15 28 49.70	13 34 58.3	70.90	16	17 9 3.75	17 45 26.6	32.53
17	15 30 55.09	13 42 1.5	70.17	17	17 11 9.06	17 48 39.3	31.68
18	15 33 0.47	13 49 0.3	69.43	18	17 13 14.37	17 51 46.8	30.83
19	15 35 5.84	13 55 54.7	68.69	19	17 15 19.68	17 54 49.3	29.98
20	15 37 11.20	14 2 44.6	67.94	20	17 17 24.99	17 57 46.6	29.13
21	15 39 16.54	14 9 30.0	67.19	21	17 19 30.30	18 0 38.9	28.28
22	15 41 21.87	14 16 10.9	66.44	22	17 21 35.61	18 3 26.0	27.42
23	15 43 27.20	14 22 47.3	65.68	23	17 23 40.92	18 6 7.9	26.56
24	15 45 32.51	S. 14 29 19.1	64.92	24	17 25 46.22	S. 18 8 44.7	25.71

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 17.				WEDNESDAY 19.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	17 25 46.22	S. 18 8 44.7	25.71	0	19 5 44.70	S. 18 32 39.4	15.66
1	17 27 51.52	18 11 16.4	24.85	1	19 7 48.99	18 31 2.9	16.50
2	17 29 56.82	18 13 42.9	23.99	2	19 9 53.24	18 29 21.4	17.34
3	17 32 2.12	18 16 4.3	23.13	3	19 11 57.44	18 27 34.8	18.19
4	17 34 7.41	18 18 20.5	22.27	4	19 14 1.59	18 25 43.1	19.03
5	17 36 12.69	18 20 31.5	21.41	5	19 16 5.70	18 23 46.4	19.87
6	17 38 17.97	18 22 37.4	20.55	6	19 18 9.77	18 21 44.7	20.70
7	17 40 23.25	18 24 38.1	19.68	7	19 20 13.79	18 19 38.0	21.53
8	17 42 28.52	18 26 33.6	18.82	8	19 22 17.76	18 17 26.3	22.37
9	17 44 33.78	18 28 24.0	17.96	9	19 24 21.68	18 15 9.5	23.21
10	17 46 39.03	18 30 9.1	17.09	10	19 26 25.55	18 12 47.8	24.03
11	17 48 44.27	18 31 49.1	16.22	11	19 28 29.37	18 10 21.1	24.86
12	17 50 49.51	18 33 23.8	15.36	12	19 30 33.13	18 7 49.4	25.69
13	17 52 54.74	18 34 53.4	14.50	13	19 32 36.85	18 5 12.8	26.51
14	17 54 59.95	18 36 17.8	13.63	14	19 34 40.51	18 2 31.3	27.33
15	17 57 5.15	18 37 37.0	12.76	15	19 36 44.12	17 59 44.8	28.16
16	17 59 10.34	18 38 51.0	11.90	16	19 38 47.67	17 56 53.4	28.97
17	18 1 15.51	18 39 59.8	11.03	17	19 40 51.17	17 53 57.2	29.78
18	18 3 20.67	18 41 3.3	10.16	18	19 42 54.61	17 50 56.0	30.60
19	18 5 25.82	18 42 1.7	9.30	19	19 44 57.99	17 47 50.0	31.41
20	18 7 30.95	18 42 54.9	8.43	20	19 47 1.32	17 44 39.1	32.22
21	18 9 36.06	18 43 42.9	7.56	21	19 49 4.58	17 41 23.4	33.02
22	18 11 41.16	18 44 25.6	6.69	22	19 51 7.79	17 38 2.9	33.82
23	18 13 46.24	S. 18 45 3.2	5.82	23	19 53 10.94	S. 17 34 37.6	34.62
TUESDAY 18.				THURSDAY 20.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	18 15 51.30	S. 18 45 35.5	4.96	0	19 55 14.02	S. 17 31 7.5	35.42
1	18 17 56.34	18 46 2.7	4.09	1	19 57 17.05	17 27 32.6	36.21
2	18 20 1.36	18 46 24.6	3.22	2	19 59 20.01	17 23 53.0	37.00
3	18 22 6.35	18 46 41.4	2.36	3	20 1 22.91	17 20 8.6	37.79
4	18 24 11.33	18 46 53.0	1.49	4	20 3 25.75	17 16 19.5	38.58
5	18 26 16.28	18 46 59.3	0.63	5	20 5 28.52	17 12 25.7	39.36
6	18 28 21.21	18 47 0.5	0.23	6	20 7 31.23	17 8 27.2	40.14
7	18 30 26.11	18 46 56.5	1.10	7	20 9 33.88	17 4 24.0	40.92
8	18 32 30.98	18 46 47.3	1.96	8	20 11 36.46	17 0 16.2	41.69
9	18 34 35.83	18 46 33.0	2.82	9	20 13 38.97	16 56 3.7	42.46
10	18 36 40.65	18 46 13.4	3.69	10	20 15 41.42	16 51 46.7	43.23
11	18 38 45.44	18 45 48.7	4.55	11	20 17 43.80	16 47 25.0	43.99
12	18 40 50.21	18 45 18.8	5.41	12	20 19 46.11	16 42 58.8	44.75
13	18 42 54.94	18 44 43.8	6.27	13	20 21 48.35	16 38 28.0	45.51
14	18 44 59.64	18 44 3.6	7.13	14	20 23 50.53	16 33 52.7	46.26
15	18 47 4.31	18 43 18.2	7.99	15	20 25 52.64	16 29 12.9	47.01
16	18 49 8.94	18 42 27.7	8.84	16	20 27 54.67	16 24 28.6	47.75
17	18 51 13.54	18 41 32.1	9.70	17	20 29 56.64	16 19 39.9	48.49
18	18 53 18.11	18 40 31.3	10.55	18	20 31 58.54	16 14 46.7	49.24
19	18 55 22.63	18 39 25.5	11.40	19	20 34 0.37	16 9 49.0	49.98
20	18 57 27.12	18 38 14.5	12.26	20	20 36 2.13	16 4 47.0	50.71
21	18 59 31.58	18 36 58.3	13.11	21	20 38 3.82	15 59 40.5	51.44
22	19 1 35.99	18 35 37.1	13.96	22	20 40 5.44	15 54 29.7	52.16
23	19 3 40.37	18 34 10.8	14.81	23	20 42 6.99	15 49 14.6	52.88
24	19 5 44.70	S. 18 32 39.4	15.66	24	20 44 8.47	S. 15 43 55.2	53.59

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
FRIDAY 21.				SUNDAY 23.			
0	^h 20 ^m 44 ^s 8.47	[°] 8.15 ['] 43 ["] 55.2	53.59	0	^h 22 ^m 19 ^s 59.35	[°] S. 10 ['] 12 ["] 20.4	82.69
1	20 46 9.88	15 38 31.5	54.31	1	22 21 57.70	10 4 2.8	83.17
2	20 48 11.21	15 33 3.5	55.03	2	22 23 56.00	9 55 42.4	83.64
3	20 50 12.48	15 27 31.2	55.73	3	22 25 54.26	9 47 19.1	84.11
4	20 52 13.67	15 21 54.7	56.43	4	22 27 52.47	9 38 53.0	84.58
5	20 54 14.80	15 16 14.1	57.13	5	22 29 50.64	9 30 24.1	85.04
6	20 56 15.85	15 10 29.2	57.82	6	22 31 48.77	9 21 52.5	85.48
7	20 58 16.83	15 4 40.2	58.50	7	22 33 46.87	9 13 18.3	85.93
8	21 0 17.74	14 58 47.2	59.18	8	22 35 44.92	9 4 41.4	86.37
9	21 2 18.58	14 52 50.0	59.87	9	22 37 42.94	8 56 1.8	86.81
10	21 4 19.35	14 46 48.7	60.55	10	22 39 40.92	8 47 19.6	87.24
11	21 6 20.04	14 40 43.4	61.22	11	22 41 38.86	8 38 34.9	87.66
12	21 8 20.67	14 34 34.0	61.89	12	22 43 36.77	8 29 47.7	88.07
13	21 10 21.23	14 28 20.7	62.55	13	22 45 34.65	8 20 58.0	88.48
14	21 12 21.71	14 22 3.4	63.21	14	22 47 32.50	8 12 5.9	88.89
15	21 14 22.12	14 15 42.1	63.87	15	22 49 30.33	8 3 11.3	89.29
16	21 16 22.47	14 9 17.0	64.52	16	22 51 28.13	7 54 14.4	89.68
17	21 18 22.74	14 2 47.9	65.17	17	22 53 25.90	7 45 15.1	90.07
18	21 20 22.94	13 56 15.0	65.80	18	22 55 23.64	7 36 13.5	90.45
19	21 22 23.08	13 49 38.3	66.43	19	22 57 21.37	7 27 9.7	90.82
20	21 24 23.14	13 42 57.8	67.07	20	22 59 19.07	7 18 3.7	91.19
21	21 26 23.14	13 36 13.5	67.70	21	23 1 16.76	7 8 55.4	91.56
22	21 28 23.07	13 29 25.4	68.32	22	23 3 14.43	6 59 45.0	91.91
23	21 30 22.93	8.13 22 33.6	68.93	23	23 5 12.08	8.6 50 32.5	92.25
SATURDAY 22.				MONDAY 24.			
0	21 32 22.72	8.13 15 38.2	69.54	0	23 7 9.72	8.6 41 18.0	92.59
1	21 34 22.45	13 8 39.1	70.15	1	23 9 7.35	6 32 1.4	92.93
2	21 36 22.11	13 1 36.4	70.75	2	23 11 4.96	6 22 42.8	93.27
3	21 38 21.70	12 54 30.1	71.35	3	23 13 2.56	6 13 22.2	93.59
4	21 40 21.23	12 47 20.2	71.95	4	23 15 0.16	6 3 59.7	93.91
5	21 42 20.70	12 40 6.7	72.53	5	23 16 57.75	5 54 35.3	94.22
6	21 44 20.10	12 32 49.8	73.11	6	23 18 55.34	5 45 9.1	94.53
7	21 46 19.44	12 25 29.4	73.69	7	23 20 52.93	5 35 41.0	94.82
8	21 48 18.72	12 18 5.5	74.26	8	23 22 50.52	5 26 11.2	95.11
9	21 50 17.94	12 10 38.3	74.83	9	23 24 48.11	5 16 39.7	95.40
10	21 52 17.09	12 3 7.6	75.39	10	23 26 45.70	5 7 6.4	95.68
11	21 54 16.19	11 55 33.6	75.95	11	23 28 43.30	4 57 31.5	95.94
12	21 56 15.22	11 47 56.2	76.50	12	23 30 40.90	4 47 55.1	96.21
13	21 58 14.20	11 40 15.6	77.04	13	23 32 38.52	4 38 17.0	96.47
14	22 0 13.12	11 32 31.7	77.59	14	23 34 36.14	4 28 37.4	96.73
15	22 2 11.98	11 24 44.5	78.12	15	23 36 33.78	4 18 56.3	96.98
16	22 4 10.79	11 16 54.2	78.65	16	23 38 31.44	4 9 13.7	97.22
17	22 6 9.54	11 9 0.7	79.18	17	23 40 29.11	3 59 29.7	97.44
18	22 8 8.24	11 1 4.0	79.70	18	23 42 26.80	3 49 44.4	97.66
19	22 10 6.88	10 53 4.3	80.21	19	23 44 24.51	3 39 57.7	97.89
20	22 12 5.48	10 45 1.5	80.72	20	23 46 22.25	3 30 9.7	98.11
21	22 14 4.02	10 36 55.7	81.22	21	23 48 20.01	3 20 20.4	98.31
22	22 16 2.51	10 28 46.9	81.72	22	23 50 17.80	3 10 30.0	98.50
23	22 18 0.95	10 20 35.1	82.21	23	23 52 15.62	3 0 38.4	98.70
24	22 19 59.35	8.10 12 20.4	82.69	24	23 54 13.47	8.2 50 45.6	98.88

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
TUESDAY 25.				THURSDAY 27.			
0	h m s 23 54 13.47	S. 2 50 45.6	98.88	0	h m s 1 29 52.56	N. 5 11 43.0	99.28
1	23 56 11.36	2 40 51.8	99.06	1	1 31 54.82	5 21 38.2	99.11
2	23 58 9.28	2 30 56.9	99.23	2	1 33 57.24	5 31 32.3	98.92
3	0 0 7.23	2 21 1.0	99.40	3	1 35 59.81	5 41 25.2	98.73
4	0 2 5.23	2 11 4.1	99.56	4	1 38 2.53	5 51 17.0	98.53
5	0 4 3.27	2 1 6.3	99.71	5	1 40 5.41	6 1 7.5	98.31
6	0 6 1.35	1 51 7.6	99.86	6	1 42 8.46	6 10 56.7	98.08
7	0 7 59.49	1 41 8.0	99.99	7	1 44 11.67	6 20 44.5	97.85
8	0 9 57.67	1 31 7.7	100.12	8	1 46 15.04	6 30 30.9	97.62
9	0 11 55.90	1 21 6.6	100.25	9	1 48 18.58	6 40 15.9	97.38
10	0 13 54.19	1 11 4.7	100.37	10	1 50 22.30	6 49 59.4	97.12
11	0 15 52.54	1 1 2.2	100.47	11	1 52 26.19	6 59 41.3	96.85
12	0 17 50.94	0 50 59.1	100.57	12	1 54 30.25	7 9 21.6	96.58
13	0 19 49.40	0 40 55.4	100.67	13	1 56 34.49	7 19 0.3	96.31
14	0 21 47.93	0 30 51.1	100.76	14	1 58 38.92	7 28 37.3	96.02
15	0 23 46.53	0 20 46.3	100.83	15	2 0 43.53	7 38 12.5	95.72
16	0 25 45.19	0 10 41.1	100.91	16	2 2 48.32	7 47 45.9	95.41
17	0 27 43.92	S. 0 0 35.4	100.98	17	2 4 53.30	7 57 17.5	95.10
18	0 29 42.72	N. 0 9 30.6	101.03	18	2 6 58.47	8 6 47.1	94.78
19	0 31 41.60	0 19 37.0	101.08	19	2 9 3.84	8 16 14.8	94.45
20	0 33 40.56	0 29 43.6	101.12	20	2 11 9.40	8 25 40.5	94.10
21	0 35 39.60	0 39 50.5	101.16	21	2 13 15.15	8 35 4.0	93.75
22	0 37 38.71	0 49 57.6	101.19	22	2 15 21.11	8 44 25.5	93.40
23	0 39 37.91	N. 1 0 4.8	101.21	23	2 17 27.26	N. 8 53 44.8	93.03
WEDNESDAY 26.				FRIDAY 28.			
0	0 41 37.20	N. 1 10 12.1	101.23	0	2 19 33.62	N. 9 3 1.8	92.65
1	0 43 36.58	1 20 19.5	101.23	1	2 21 40.19	9 12 16.6	92.27
2	0 45 36.05	1 30 26.9	101.23	2	2 23 46.96	9 21 29.0	91.88
3	0 47 35.61	1 40 34.3	101.23	3	2 25 53.94	9 30 39.1	91.48
4	0 49 35.27	1 50 41.7	101.22	4	2 28 1.14	9 39 46.7	91.06
5	0 51 35.02	2 0 48.9	101.19	5	2 30 8.55	9 48 51.8	90.63
6	0 53 34.88	2 10 56.0	101.16	6	2 32 16.18	9 57 54.3	90.21
7	0 55 34.85	2 21 2.9	101.13	7	2 34 24.02	10 6 54.3	89.78
8	0 57 34.92	2 31 9.5	101.08	8	2 36 32.09	10 15 51.6	89.33
9	0 59 35.10	2 41 15.8	101.02	9	2 38 40.38	10 24 46.2	88.87
10	1 1 35.39	2 51 21.7	100.96	10	2 40 48.90	10 33 38.0	88.40
11	1 3 35.79	3 1 27.3	100.90	11	2 42 57.64	10 42 27.0	87.92
12	1 5 36.31	3 11 32.5	100.82	12	2 45 6.61	10 51 13.1	87.44
13	1 7 36.95	3 21 37.2	100.73	13	2 47 15.81	10 59 56.3	86.95
14	1 9 37.71	3 31 41.3	100.63	14	2 49 25.25	11 8 36.5	86.45
15	1 11 38.60	3 41 44.8	100.53	15	2 51 34.92	11 17 13.7	85.93
16	1 13 39.61	3 51 47.7	100.43	16	2 53 44.82	11 25 47.7	85.41
17	1 15 40.75	4 1 50.0	100.32	17	2 55 54.97	11 34 18.6	84.88
18	1 17 42.02	4 11 51.5	100.19	18	2 58 5.35	11 42 46.3	84.34
19	1 19 43.43	4 21 52.3	100.06	19	3 0 15.97	11 51 10.7	83.79
20	1 21 44.98	4 31 52.2	99.92	20	3 2 26.84	11 59 31.8	83.23
21	1 23 46.66	4 41 51.3	99.78	21	3 4 37.95	12 7 49.5	82.66
22	1 25 48.48	4 51 49.5	99.63	22	3 6 49.31	12 16 3.8	82.09
23	1 27 50.45	5 1 46.8	99.46	23	3 9 0.92	12 24 14.6	81.50
24	1 29 52.56	N. 5 11 43.0	99.28	24	3 11 12.77	N. 12 32 21.8	80.90

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
SATURDAY 29.			
	^h ^m ^s	[°] ['] ["]	["]
0	3 11 12.77	N. 12 32 21.8	80.90
1	3 13 24.87	12 40 25.4	80.29
2	3 15 37.23	12 48 25.3	79.68
3	3 17 49.84	12 56 21.5	79.05
4	3 20 2.70	13 4 13.9	78.42
5	3 22 15.82	13 12 2.5	77.78
6	3 24 29.20	13 19 47.2	77.12
7	3 26 42.84	13 27 27.9	76.45
8	3 28 56.73	13 35 4.6	75.77
9	3 31 10.88	13 42 37.2	75.08
10	3 33 25.30	13 50 5.6	74.39
11	3 35 39.98	13 57 29.9	73.69
12	3 37 54.92	14 4 49.9	72.98
13	3 40 10.12	14 12 5.6	72.26
14	3 42 25.59	14 19 17.0	71.53
15	3 44 41.33	14 26 24.0	70.79
16	3 46 57.33	14 33 26.5	70.03
17	3 49 13.59	14 40 24.4	69.27
18	3 51 30.13	14 47 17.7	68.50
19	3 53 46.93	14 54 6.4	67.72
20	3 56 3.99	15 0 50.4	66.93
21	3 58 21.33	15 7 29.6	66.13
22	4 0 38.93	15 14 3.9	65.32
23	4 2 56.80	N. 15 20 33.4	64.50
SUNDAY, MARCH 1.			
0	4 5 14.93	N. 15 26 57.9	63.67

PHASES OF THE MOON.

		^h ^m
Feb. 1	☾ First Quarter -	6 15.8
7	○ Full Moon -	21 35.3
14	☾ Last Quarter -	21 16.6
23	● New Moon -	2 20.4

		^h
Feb. 7	☾ Perigee - - - -	3
19	☾ Apogee - - - -	15

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
1	SUN W.	86° 48' 2"	2926	88° 19' 48"	2909	89° 51' 56"	2892	91° 24' 25"	2875
	Jupiter W.	57° 26' 23"	2653	59° 4' 6"	2637	60° 42' 11"	2622	62° 20' 36"	2605
	Venus W.	55° 55' 59"	2999	57° 26' 13"	2982	58° 56' 48"	2964	60° 27' 46"	2947
	α Pegasi W.	52° 14' 25"	3058	53° 43' 26"	3022	55° 13' 11"	2989	56° 43' 38"	2956
	Aldebaran E.	29° 4' 49"	2579	27° 25' 25"	2563	25° 45' 39"	2547	24° 5' 31"	2532
	Pollux E.	73° 23' 40"	2656	71° 46' 1"	2642	70° 8' 3"	2628	68° 29' 46"	2614
	Regulus E.	109° 12' 48"	2580	107° 33' 25"	2564	105° 53' 40"	2548	104° 13' 33"	2532
2	SUN W.	99° 12' 27"	2786	100° 47' 13"	2769	102° 22' 22"	2750	103° 57' 55"	2732
	Jupiter W.	70° 38' 21"	2522	72° 19' 3"	2506	74° 0' 8"	2489	75° 41' 37"	2472
	Venus W.	68° 8' 9"	2857	69° 41' 23"	2839	71° 15' 0"	2820	72° 49' 2"	2802
	α Pegasi W.	64° 25' 39"	2811	65° 59' 53"	2785	67° 34' 40"	2760	69° 10' 1"	2735
	α Arietis W.	22° 14' 55"	3620	23° 33' 8"	3452	24° 54' 26"	3311	26° 18' 25"	3191
	Pollux E.	60° 13' 36"	2546	58° 33' 26"	2533	56° 52' 59"	2520	55° 12' 13"	2507
	Regulus E.	95° 47' 25"	2450	94° 5' 2"	2434	92° 22' 16"	2417	90° 39' 6"	2400
3	SUN W.	112° 1' 39"	2642	113° 39' 37"	2625	115° 17' 58"	2607	116° 56' 43"	2590
	Jupiter W.	84° 15' 0"	2387	85° 58' 53"	2371	87° 43' 10"	2354	89° 27' 51"	2338
	Venus W.	80° 45' 9"	2711	82° 21' 35"	2693	83° 58' 25"	2675	85° 35' 39"	2657
	α Pegasi W.	77° 14' 32"	2624	78° 52' 54"	2604	80° 31' 44"	2584	82° 11' 1"	2566
	α Arietis W.	33° 48' 39"	2789	35° 23' 21"	2733	36° 59' 17"	2683	38° 36' 20"	2637
	Pollux E.	46° 44' 23"	2456	45° 2' 8"	2448	43° 19' 41"	2442	41° 37' 6"	2437
	Regulus E.	81° 57' 18"	2318	80° 11' 44"	2301	78° 25' 46"	2285	76° 39' 24"	2268
4	SUN W.	125° 16' 23"	2506	126° 57' 28"	2490	128° 38' 56"	2475	130° 20' 45"	2460
	Jupiter W.	98° 17' 8"	2251	100° 4' 9"	2244	101° 51' 31"	2229	103° 39' 16"	2214
	Venus W.	93° 47' 45"	2578	95° 27' 20"	2555	97° 7' 17"	2539	98° 47' 36"	2524
	α Pegasi W.	90° 33' 30"	2483	92° 15' 7"	2469	93° 57' 4"	2456	95° 39' 19"	2444
	α Arietis W.	46° 55' 44"	2455	48° 38' 1"	2426	50° 20' 59"	2398	52° 4' 37"	2373
	Pollux E.	33° 3' 26"	2449	31° 21' 1"	2462	29° 38' 54"	2482	27° 57' 16"	2509
	Regulus E.	67° 41' 40"	2190	65° 52' 58"	2176	64° 3' 54"	2161	62° 14' 28"	2147
5	Spica E.	121° 11' 12"	2221	119° 23' 15"	2204	117° 34' 54"	2189	115° 46' 10"	2175
	Jupiter W.	112° 43' 8"	2149	114° 32' 52"	2138	116° 22' 53"	2126	118° 13' 12"	2116
	Venus W.	107° 14' 20"	2453	108° 56' 39"	2440	110° 39' 16"	2429	112° 22' 9"	2418
	α Pegasi W.	104° 14' 26"	2398	105° 58' 3"	2393	107° 41' 47"	2389	109° 25' 38"	2387
	α Arietis W.	60° 51' 17"	2266	62° 38' 6"	2248	64° 25' 22"	2232	66° 13' 2"	2217
	Aldebaran W.	27° 6' 39"	2082	28° 58' 6"	2071	30° 49' 50"	2059	32° 41' 52"	2049
	Regulus E.	53° 2' 10"	2083	51° 10' 45"	2072	49° 19' 3"	2061	47° 27' 4"	2051
6	Spica E.	106° 37' 5"	2107	104° 46' 16"	2095	102° 55' 9"	2084	101° 3' 45"	2073
	α Pegasi W.	118° 5' 0"	2399	119° 48' 36"	2408	121° 31' 59"	2419	123° 15' 7"	2433
	α Arietis W.	75° 16' 28"	2157	77° 6' 0"	2149	78° 55' 45"	2141	80° 45' 41"	2134
	Aldebaran W.	42° 5' 40"	2007	43° 59' 3"	2001	45° 52' 36"	1995	47° 46' 18"	1990
	Regulus E.	38° 3' 29"	2009	36° 10' 9"	2003	34° 16' 39"	1998	32° 23' 1"	1993
	Spica E.	91° 42' 58"	2030	89° 50' 10"	2024	87° 57' 13"	2018	86° 4' 7"	2013
	α Arietis W.	89° 57' 21"	2118	91° 47' 53"	2118	93° 38' 25"	2119	95° 28' 56"	2121
7	Aldebaran W.	57° 16' 25"	1976	59° 10' 37"	1976	61° 4' 49"	1976	62° 59' 1"	1977
	Pollux W.	16° 42' 33"	2929	18° 14' 15"	2753	19° 49' 45"	2622	21° 28' 10"	2522
	Spica E.	76° 37' 6"	2000	74° 43' 32"	2001	72° 49' 59"	2002	70° 56' 27"	2004
	Saturn E.	119° 21' 10"	2002	117° 27' 39"	2002	115° 34' 7"	2002	113° 40' 36"	2002
	Antares E.	122° 12' 28"	2064	120° 20' 34"	2061	118° 28' 34"	2058	116° 36' 30"	2056

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
1	Sun W.	92 57 16	2857	94 30 30	2840	96 4 6	2822	97 38 5	2804
	Jupiter W.	63 59 24	2589	65 38 34	2572	67 18 7	2556	68 58 2	2539
	Venus W.	61 59 5	2929	63 30 47	2912	65 2 51	2894	66 35 18	2875
	α Pegasi W.	58 14 46	2925	59 46 33	2895	61 18 59	2866	62 52 1	2838
	Aldebaran E.	22 25 2	2515	20 44 10	2499	19 2 56	2483	17 21 19	2467
	Pollux E.	66 51 10	2600	65 12 15	2586	63 33 1	2572	61 53 28	2559
	Regulus E.	102 33 5	2516	100 52 14	2500	99 11 0	2484	97 29 24	2467
2	Sun W.	105 33 52	2715	107 10 12	2696	108 46 57	2678	110 24 6	2660
	Jupiter W.	77 23 30	2455	79 5 46	2438	80 48 27	2421	82 31 32	2405
	Venus W.	74 23 27	2784	75 58 16	2765	77 33 30	2747	79 9 7	2729
	α Pegasi W.	70 45 54	2712	72 22 18	2689	73 59 13	2666	75 36 38	2645
	α Arietis W.	27 44 45	3088	29 13 9	2998	30 43 24	2920	32 15 17	2851
	Pollux E.	53 31 10	2496	51 49 51	2485	50 8 16	2474	48 26 27	2464
	Regulus E.	88 55 32	2384	87 11 35	2367	85 27 13	2351	83 42 27	2335
3	Sun W.	118 35 52	2572	120 15 25	2556	121 55 21	2538	123 35 41	2522
	Jupiter W.	91 12 55	2321	92 58 24	2306	94 44 15	2289	96 30 30	2274
	Venus W.	87 13 17	2639	88 51 19	2621	90 29 45	2604	92 8 34	2588
	α Pegasi W.	83 50 43	2548	85 30 50	2531	87 11 20	2514	88 52 14	2498
	α Arietis W.	40 14 25	2594	41 53 28	2555	43 33 25	2519	45 14 11	2486
	Pollux E.	39 54 23	2434	38 11 37	2433	36 28 49	2435	34 46 4	2440
	Regulus E.	74 52 38	2252	73 5 28	2237	71 17 55	2221	69 29 59	2206
4	Sun W.	132 2 55	2445	133 45 26	2431	135 28 17	2417	137 11 27	2404
	Jupiter W.	105 27 22	2200	107 15 49	2187	109 4 36	2174	110 53 42	2161
	Venus W.	100 28 16	2509	102 9 17	2494	103 50 39	2480	105 32 20	2467
	α Pegasi W.	97 21 51	2432	99 4 40	2422	100 47 43	2413	102 30 59	2405
	α Arietis W.	53 48 51	2349	55 33 40	2326	57 19 2	2305	59 4 55	2285
	Pollux E.	26 16 15	2546	24 36 5	2595	22 57 3	2660	21 19 30	2748
	Regulus E.	60 24 41	2133	58 34 33	2120	56 44 5	2107	54 53 17	2095
	Spica E.	113 57 4	2159	112 7 35	2145	110 17 45	2132	108 27 35	2119
5	Jupiter W.	120 3 46	2107	121 54 35	2097	123 45 39	2089	125 36 55	2081
	Venus W.	114 5 18	2407	115 48 43	2397	117 32 22	2388	119 16 14	2380
	α Pegasi W.	111 9 32	2385	112 53 28	2386	114 37 23	2388	116 21 15	2393
	α Arietis W.	68 1 4	2203	69 49 27	2190	71 38 10	2178	73 27 11	2167
	Aldebaran W.	34 34 9	2040	36 26 41	2030	38 19 28	2022	40 12 28	2014
	Regulus E.	45 34 49	2041	43 42 19	2032	41 49 35	2024	39 56 38	2016
	Spica E.	99 12 4	2063	97 20 8	2054	95 27 58	2045	93 35 34	2037
6	α Pegasi W.	124 57 54	2450	126 40 18	2470	128 22 14	2494	130 3 36	2521
	α Arietis W.	82 35 48	2129	84 26 3	2125	86 16 24	2121	88 6 51	2119
	Aldebaran W.	49 40 8	1986	51 34 5	1982	53 28 8	1979	55 22 15	1977
	Regulus E.	30 29 16	1989	28 35 24	1986	26 41 27	1984	24 47 27	1982
	Spica E.	84 10 53	2009	82 17 33	2005	80 24 7	2003	78 30 38	2002
7	α Arietis W.	97 19 24	2124	99 9 47	2128	101 0 3	2133	102 50 11	2140
	Aldebaran W.	64 53 11	1979	66 47 18	1982	68 41 21	1986	70 35 18	1990
	Pollux W.	23 8 52	2445	24 51 23	2386	26 35 18	2339	28 20 20	2302
	Spica E.	69 2 59	2006	67 9 33	2010	65 16 14	2014	63 23 1	2019
	Saturn E.	111 47 5	2004	109 53 37	2007	108 0 13	2010	106 6 54	2014
	Antares E.	114 44 23	2056	112 52 16	2057	111 0 10	2058	109 8 6	2061

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
8	α Arietis W.	104 40 9	2148	106 29 55	2157	108 19 27	2167	110 8 44	2178
	Aldebaran W.	72 29 8	1995	74 22 51	2001	76 16 24	2007	78 9 47	2015
	Pollux W.	30 6 16	2274	31 52 54	2252	33 40 5	2235	35 27 41	2222
	Spica E.	61 29 57	2025	59 37 2	2032	57 44 18	2041	55 51 47	2050
	Saturn E.	104 13 42	2019	102 20 37	2025	100 27 42	2031	98 34 56	2038
	Antares E.	107 16 7	2065	105 24 13	2070	103 32 27	2075	101 40 49	2081
9	Aldebaran W.	87 33 24	2062	89 25 22	2074	91 17 1	2086	93 8 21	2099
	Pollux W.	44 28 48	2204	46 17 10	2207	48 5 27	2212	49 53 37	2218
	Spica E.	46 33 7	2108	44 42 20	2122	42 51 55	2138	41 1 54	2155
	Saturn E.	89 14 22	2086	87 23 1	2097	85 31 58	2110	83 41 14	2122
	Antares E.	92 25 36	2127	90 35 17	2138	88 45 16	2151	86 55 34	2164
10	Aldebaran W.	102 19 52	2171	104 9 3	2188	105 57 49	2203	107 46 12	2220
	Pollux W.	58 51 33	2266	60 38 22	2279	62 24 52	2292	64 11 3	2307
	Regulus W.	22 13 5	2176	24 2 8	2192	25 50 48	2208	27 39 4	2224
	Spica E.	31 58 49	2259	30 11 49	2285	28 25 28	2314	26 39 49	2346
	Saturn E.	74 32 44	2195	72 44 9	2212	70 55 59	2228	69 8 13	2245
	Antares E.	77 52 19	2239	76 4 50	2256	74 17 46	2273	72 31 7	2292
	α Aquilæ E.	123 1 39	2862	121 28 31	2851	119 55 9	2843	118 21 37	2839
11	Pollux W.	72 56 31	2386	74 40 26	2403	76 23 57	2421	78 7 2	2438
	Regulus W.	36 34 10	2311	38 19 53	2329	40 5 10	2348	41 49 59	2367
	Saturn E.	60 15 52	2335	58 30 43	2354	56 46 2	2373	55 1 49	2392
	Antares E.	63 44 50	2391	62 1 2	2411	60 17 43	2433	58 34 56	2455
	α Aquilæ E.	110 33 29	2848	109 0 3	2856	107 26 47	2863	105 53 41	2874
	SUN E.	137 30 26	2633	135 52 16	2653	134 14 33	2673	132 37 17	2693
12	Pollux W.	86 36 2	2532	88 16 31	2551	89 56 34	2570	91 36 10	2589
	Regulus W.	50 27 19	2462	52 9 25	2481	53 51 5	2501	55 32 17	2520
	Saturn E.	46 27 42	2492	44 46 17	2512	43 5 20	2532	41 24 51	2552
	Antares E.	50 9 2	2574	48 29 31	2600	46 50 36	2625	45 12 15	2652
	α Aquilæ E.	98 11 56	2940	96 40 28	2955	95 9 19	2973	93 38 32	2990
	SUN E.	124 37 43	2795	123 3 9	2817	121 29 3	2837	119 55 23	2858
13	Pollux W.	99 47 35	2686	101 24 34	2705	103 1 7	2724	104 37 15	2744
	Regulus W.	63 51 44	2613	65 30 21	2632	67 8 32	2650	68 46 19	2669
	Saturn E.	33 9 27	2655	31 31 47	2675	29 54 34	2697	28 17 50	2718
	Antares E.	37 9 56	2801	35 35 29	2835	34 1 47	2871	32 28 51	2909
	α Aquilæ E.	86 10 17	3086	84 41 50	3107	83 13 49	3129	81 46 14	3150
	SUN E.	112 13 40	2960	110 42 37	2979	109 11 58	2998	107 41 43	3018
14	Pollux W.	112 31 40	2837	114 5 20	2855	115 38 36	2873	117 11 29	2891
	Regulus W.	76 49 20	2753	78 24 49	2770	79 59 56	2785	81 34 43	2801
	Spica W.	23 50 31	2890	25 23 3	2891	26 55 34	2894	28 28 1	2899
	α Aquilæ E.	74 35 3	3266	73 10 12	3292	71 45 51	3318	70 22 0	3344
	SUN E.	100 16 24	3110	98 48 27	3128	97 20 52	3145	95 53 37	3162
15	Regulus W.	89 23 44	2873	90 56 38	2886	92 29 14	2899	94 1 35	2912
	Spica W.	36 8 13	2937	37 39 45	2945	39 11 7	2955	40 42 16	2963
	α Aquilæ E.	63 30 27	3485	62 9 46	3516	60 49 39	3547	59 30 7	3582
	SUN E.	88 42 16	3240	87 16 54	3254	85 51 49	3268	84 27 0	3282
16	Regulus W.	101 39 33	2967	103 10 28	2977	104 41 10	2985	106 11 41	2994

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
8	α Arietis W.	111 57 45	2191	113 46 26	2205	115 34 47	2220	117 22 45	2236
	Aldebaran W.	80 2 58	2023	81 55 56	2032	83 48 41	2041	85 41 11	2052
	Pollux W.	37 15 36	2213	39 3 45	2207	40 52 2	2203	42 40 25	2203
	Spica E.	53 59 30	2059	52 7 28	2070	50 15 42	2082	48 24 15	2094
	Saturn E.	96 42 22	2047	94 50 0	2055	92 57 52	2065	91 5 59	2075
	Antares E.	99 49 21	2088	97 58 4	2097	96 7 0	2106	94 16 10	2116
9	Aldebaran W.	94 59 22	2113	96 50 2	2126	98 40 21	2141	100 30 18	2156
	Pollux W.	51 41 38	2225	53 29 28	2234	55 17 5	2244	57 4 27	2255
	Spica E.	39 12 19	2173	37 23 11	2192	35 34 32	2213	33 46 24	2235
	Saturn E.	81 50 49	2136	80 0 45	2150	78 11 2	2165	76 21 42	2180
	Antares E.	85 6 12	2177	83 17 10	2192	81 28 30	2207	79 40 13	2223
10	Aldebaran W.	109 34 9	2237	111 21 41	2255	113 8 47	2273	114 55 26	2291
	Pollux W.	65 56 53	2322	67 42 21	2336	69 27 28	2352	71 12 11	2369
	Regulus W.	29 26 56	2241	31 14 23	2258	33 1 24	2275	34 48 0	2293
	Spica E.	24 54 56	2381	23 10 53	2421	21 27 48	2467	19 45 48	2521
	Saturn E.	67 20 53	2262	65 33 58	2280	63 47 29	2298	62 1 27	2317
	Antares E.	70 44 56	2311	68 59 12	2330	67 13 56	2349	65 29 8	2370
	α Aquilæ E.	116 48 0	2836	115 14 19	2837	113 40 39	2838	112 7 1	2843
11	Pollux W.	79 49 42	2457	81 31 56	2475	83 13 44	2494	84 55 6	2512
	Regulus W.	43 34 21	2385	45 18 17	2405	47 1 45	2424	48 44 45	2443
	Saturn E.	53 18 3	2412	51 34 46	2432	49 51 57	2451	48 9 35	2472
	Antares E.	56 52 40	2479	55 10 57	2501	53 29 45	2525	51 49 7	2549
	α Aquilæ E.	104 20 49	2885	102 48 11	2898	101 15 49	2910	99 43 43	2924
	SUN E.	131 0 28	2713	129 24 6	2734	127 48 11	2754	126 12 43	2775
12	Pollux W.	93 15 20	2609	94 54 3	2628	96 32 20	2647	98 10 11	2667
	Regulus W.	57 13 3	2539	58 53 22	2557	60 33 16	2577	62 12 43	2596
	Saturn E.	39 44 50	2572	38 5 17	2593	36 26 13	2613	34 47 36	2634
	Antares E.	43 34 31	2679	41 57 24	2708	40 20 54	2738	38 45 5	2769
	α Aquilæ E.	92 8 7	3008	90 38 4	3026	89 8 24	3046	87 39 8	3066
	SUN E.	118 22 10	2879	116 49 24	2899	115 17 4	2919	113 45 9	2939
13	Pollux W.	106 12 57	2762	107 48 15	2781	109 23 7	2799	110 57 36	2818
	Regulus W.	70 23 41	2686	72 0 40	2703	73 37 16	2720	75 13 29	2737
	Saturn E.	26 41 34	2740	25 5 47	2763	23 30 30	2785	21 55 42	2809
	Antares E.	30 56 44	2951	29 25 30	2997	27 55 14	3047	26 25 59	3103
	α Aquilæ E.	80 19 5	3173	78 52 23	3195	77 26 8	3219	76 0 21	3243
	SUN E.	106 11 53	3038	104 42 27	3056	103 13 23	3075	101 44 43	3092
14	Pollux W.	118 44 0	2909	120 16 7	2927	121 47 51	2943	123 19 15	2961
	Regulus W.	83 9 9	2816	84 43 16	2831	86 17 4	2845	87 50 33	2859
	Spica W.	30 0 21	2905	31 32 33	2912	33 4 37	2920	34 36 30	2928
	α Aquilæ E.	68 58 39	3370	67 35 48	3398	66 13 29	3426	64 51 42	3455
	SUN E.	94 26 43	3178	93 0 8	3194	91 33 52	3210	90 7 55	3225
15	Regulus W.	95 33 39	2923	97 5 29	2935	98 37 4	2946	100 8 25	2956
	Spica W.	42 13 15	2973	43 44 2	2981	45 14 39	2989	46 45 5	2998
	α Aquilæ E.	58 11 13	3615	56 52 55	3652	55 35 17	3690	54 18 19	3729
	SUN E.	83 2 28	3294	81 38 10	3306	80 14 6	3319	78 50 17	3331
16	Regulus W.	107 42 1	3003	109 12 10	3010	110 42 10	3018	112 12 0	3026

MEAN TIME.
LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
16	Spica W.	48 15 20	3006	49 45 25	3014	51 15 20	3022	52 45 5	3029
	α Aquilæ E.	53 2 3	3771	51 46 31	3816	50 31 45	3862	49 17 47	3912
	SUN E.	77 26 41	3341	76 3 17	3352	74 40 6	3362	73 17 6	3372
17	Regulus W.	113 41 41	3032	115 11 14	3038	116 40 39	3044	118 9 57	3050
	Spica W.	60 11 43	3061	61 40 40	3067	63 9 30	3072	64 38 14	3077
	Saturn W.	16 57 49	3128	18 25 25	3122	19 53 8	3118	21 20 55	3116
	Antares W.	16 54 23	3876	18 8 7	3758	19 23 53	3665	20 41 18	3590
	α Aquilæ E.	43 21 35	4221	42 13 29	4298	41 6 34	4383	40 0 57	4475
	SUN E.	66 24 42	3413	65 2 40	3420	63 40 46	3426	62 18 59	3431
18	Spica W.	72 0 36	3095	73 28 52	3097	74 57 5	3099	76 25 16	3102
	Saturn W.	28 40 11	3115	30 8 2	3115	31 35 53	3115	33 3 44	3116
	Antares W.	27 24 25	3376	28 47 9	3351	30 10 21	3330	31 33 58	3312
	SUN E.	55 31 32	3454	54 10 17	3457	52 49 5	3461	51 27 57	3463
19	Spica W.	83 45 40	3106	85 13 42	3106	86 41 44	3105	88 9 47	3105
	Saturn W.	40 22 56	3114	41 50 49	3114	43 18 42	3113	44 46 36	3110
	Antares W.	38 36 35	3247	40 1 49	3237	41 27 14	3228	42 52 50	3220
	SUN E.	44 42 45	3469	43 21 46	3469	42 0 47	3469	40 39 48	3468
20	Spica W.	95 30 17	3098	96 58 29	3096	98 26 43	3094	99 55 0	3091
	Saturn W.	52 6 40	3101	53 34 49	3098	55 3 1	3095	56 31 17	3092
	Antares W.	50 3 9	3183	51 29 39	3177	52 56 16	3171	54 23 0	3163
	SUN E.	33 54 33	3460	32 33 24	3458	31 12 13	3455	29 50 58	3452
25	SUN W.	21 25 32	3221	22 51 16	3214	24 17 8	3205	25 43 11	3197
	α Arietis E.	39 56 57	3232	38 31 26	3250	37 6 16	3273	35 41 33	3300
	Aldebaran E.	70 18 7	2858	68 44 54	2850	67 11 31	2842	65 37 56	2835
	Pollux E.	113 55 37	2942	112 24 11	2932	110 52 32	2923	109 20 42	2913
26	SUN W.	32 55 58	3154	34 23 2	3144	35 50 18	3135	37 17 45	3126
	α Arietis E.	28 47 38	3223	27 27 39	3297	26 9 2	3686	24 52 0	3794
	Aldebaran E.	57 47 40	2795	56 13 5	2787	54 38 20	2778	53 3 23	2769
	Pollux E.	101 38 36	2868	100 5 36	2859	98 32 25	2850	96 59 2	2841
27	SUN W.	44 37 49	3078	46 6 26	3069	47 35 14	3058	49 4 15	3048
	Aldebaran E.	45 5 49	2726	43 29 43	2717	41 53 25	2707	40 16 54	2698
	Pollux E.	89 9 12	2796	87 34 39	2787	85 59 54	2778	84 24 57	2769
	Regulus E.	125 13 48	2726	123 37 43	2717	122 1 26	2708	120 24 57	2699
28	SUN W.	56 32 32	2995	58 2 51	2984	59 33 24	2973	61 4 11	2961
	Venus W.	20 25 38	3114	21 53 31	3097	23 21 44	3081	24 50 17	3066
	Aldebaran E.	32 11 9	2649	30 33 20	2639	28 55 18	2628	27 17 1	2618
	Pollux E.	76 27 16	2744	74 51 8	2715	73 14 48	2706	71 38 16	2697
	Regulus E.	112 19 18	2649	110 41 30	2639	109 3 28	2629	107 25 13	2618
29	SUN W.	68 41 44	2902	70 14 0	2890	71 46 31	2878	73 19 18	2866
	Venus W.	32 17 36	2994	33 47 56	2980	35 18 34	2966	36 49 29	2952
	α Arietis W.	19 51 59	4157	21 1 6	3917	22 14 9	3723	23 30 32	3561
	Pollux E.	63 32 37	2653	61 54 54	2646	60 17 1	2637	58 38 56	2629
	Regulus E.	99 10 18	2564	97 30 34	2553	95 50 34	2542	94 10 19	2530

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
16	Spica W.	54 14 42	3037	55 44 9	3043	57 13 28	3049	58 42 40	3056
	α Aquilæ E.	48 4 39	3965	46 52 25	4023	45 41 8	4083	44 30 50	4149
	SUN E.	71 54 18	3381	70 31 40	3389	69 9 11	3398	67 46 52	3406
17	Regulus W.	119 39 8	3054	121 8 14	3060	122 37 13	3064	124 6 7	3067
	Spica W.	66 6 52	3081	67 35 25	3085	69 3 53	3088	70 32 17	3092
	Saturn W.	22 48 45	3115	24 16 36	3115	25 44 28	3115	27 12 20	3115
	Antares W.	22 0 3	3529	23 19 55	3479	24 40 42	3439	26 2 14	3405
	α Aquilæ E.	38 56 43	4576	37 53 57	4689	36 52 48	4812	35 53 22	4948
	SUN E.	60 57 18	3437	59 35 44	3442	58 14 15	3447	56 52 51	3451
18	Spica W.	77 53 23	3103	79 21 29	3104	80 49 34	3105	82 17 37	3105
	Saturn W.	34 31 34	3116	35 59 24	3116	37 27 14	3115	38 55 5	3115
	Antares W.	32 57 55	3295	34 22 12	3281	35 46 45	3269	37 11 33	3257
	SUN E.	50 6 51	3464	48 45 47	3466	47 24 45	3468	46 3 45	3468
19	Spica W.	89 37 50	3104	91 5 55	3103	92 34 0	3101	94 2 8	3100
	Saturn W.	46 14 33	3109	47 42 31	3108	49 10 31	3105	50 38 34	3103
	Antares W.	44 18 36	3212	45 44 31	3204	47 10 35	3197	48 36 48	3190
	SUN E.	39 18 48	3467	37 57 47	3465	36 36 44	3464	35 15 40	3462
20	Spica W.	101 23 20	3089	102 51 43	3086	104 20 10	3083	105 48 41	3080
	Saturn W.	57 59 37	3088	59 28 1	3085	60 56 29	3081	62 25 2	3077
	Antares W.	55 49 53	3157	57 16 53	3152	58 44 0	3145	60 11 15	3139
	SUN E.	28 29 40	3448	27 8 18	3445	25 46 52	3441	24 25 22	3438
25	SUN W.	27 9 24	3189	28 35 46	3179	30 2 20	3172	31 29 3	3162
	α Arietis E.	34 17 21	3330	32 53 44	3366	31 30 49	3411	30 8 45	3462
	Aldebaran E.	64 4 15	2827	62 30 22	2818	60 56 18	2811	59 22 4	2803
	Pollux E.	107 48 40	2905	106 16 27	2895	104 44 1	2887	103 11 25	2877
26	SUN W.	38 45 23	3117	40 13 12	3107	41 41 13	3098	43 9 25	3088
	α Arietis E.	23 36 51	3925	22 23 56	4086	21 13 41	4288	20 6 37	4539
	Aldebaran E.	51 28 15	2761	49 52 56	2752	48 17 25	2744	46 41 43	2735
	Pollux E.	95 25 27	2832	93 51 41	2822	92 17 42	2814	90 43 33	2805
27	SUN W.	50 33 28	3037	52 2 55	3027	53 32 34	3017	55 2 26	3006
	Aldebaran E.	38 40 11	2688	37 3 15	2678	35 26 6	2669	33 48 44	2659
	Pollux E.	82 49 49	2760	81 14 29	2750	79 38 56	2742	78 3 12	2733
	Regulus E.	118 48 15	2689	117 11 21	2679	115 34 13	2669	113 56 52	2660
28	SUN W.	62 35 13	2950	64 6 28	2938	65 37 59	2927	67 9 44	2915
	Venus W.	26 19 8	3051	27 48 18	3036	29 17 47	3022	30 47 32	3007
	Aldebaran E.	25 38 30	2607	23 59 45	2596	22 20 45	2586	20 41 31	2575
	Pollux E.	70 1 32	2688	68 24 36	2679	66 47 28	2671	65 10 9	2661
	Regulus E.	105 46 43	2608	104 7 59	2597	102 29 0	2587	100 49 47	2575
29	SUN W.	74 52 20	2853	76 25 39	2840	77 59 15	2828	79 33 6	2815
	Venus W.	38 20 42	2938	39 52 12	2925	41 23 59	2911	42 56 4	2898
	α Arietis W.	44 49 49	3425	26 11 37	3311	27 35 36	3214	29 1 29	3129
	Pollux E.	57 0 40	2621	55 22 13	2613	53 43 36	2607	52 4 50	2601
	Regulus E.	92 29 48	2519	90 49 1	2507	89 7 57	2495	87 26 37	2484

Day of the Month.	AIRY's Day Numbers— For correcting the Places of the Fixed Stars.					Mean Time of Transit of the First Point of Aries.
	At Mean Midnight,					
	Logarithms of				Value of L	
	E	F	G	H		
1	1°09110	1°60295	0°06907	1°52582	77°521	^h ^m ^s 3 15 31°64
2	1°08246	1°60027	0°07000	1°52552	78°073	3 11 35°73
3	1°07380	1°59751	0°07091	1°52523	78°626	3 7 39°82
4	1°06512	1°59469	0°07181	1°52493	79°183	3 3 43°92
5	1°05643	1°59180	0°07270	1°52463	79°740	2 59 48°01
6	1°04772	1°58883	0°07357	1°52434	80°297	2 55 52°10
7	1°03901	1°58582	0°07443	1°52404	80°854	2 51 56°19
8	1°03031	1°58273	0°07527	1°52374	81°411	2 48 0°28
9	1°02161	1°57957	0°07610	1°52345	81°969	2 44 4°37
10	1°01294	1°57636	0°07692	1°52316	82°526	2 40 8°47
11	1°00429	1°57307	0°07773	1°52287	83°083	2 36 12°56
12	0°99567	1°56970	0°07853	1°52257	83°639	2 32 16°65
13	0°98708	1°56628	0°07932	1°52228	84°195	2 28 20°74
14	0°97854	1°56278	0°08009	1°52199	84°749	2 24 24°84
15	0°97006	1°55920	0°08085	1°52171	85°302	2 20 28°93
16	0°96164	1°55557	0°08160	1°52143	85°854	2 16 33°02
17	0°95330	1°55186	0°08234	1°52116	86°404	2 12 37°11
18	0°94504	1°54807	0°08306	1°52089	86°951	2 8 41°21
19	0°93686	1°54423	0°08378	1°52062	87°498	2 4 45°30
20	0°92880	1°54031	0°08449	1°52036	88°042	2 0 49°39
21	0°92087	1°53630	0°08518	1°52010	88°582	1 56 53°48
22	0°91305	1°53224	0°08586	1°51985	89°121	1 52 57°58
23	0°90538	1°52810	0°08653	1°51960	89°656	1 49 1°67
24	0°89786	1°52387	0°08720	1°51936	90°187	1 45 5°76
25	0°89050	1°51958	0°08786	1°51912	90°716	1 41 9°86
26	0°88332	1°51522	0°08851	1°51889	91°241	1 37 13°95
27	0°87633	1°51078	0°08914	1°51868	91°761	1 33 18°04
28	0°86954	1°50628	0°08977	1°51846	92°279	1 29 22°14
29	0°86298	1°50170	0°09039	1°51825	92°792	1 25 26°23
30	0°85666	1°49703	0°09101	1°51804	93°300	1 21, 30°32

Day of the Month.	BESSEL's Day Numbers ¹ — For correcting the Places of the Fixed Stars.				Days elapsed of the Julian Period at Mean Noon.	Mean Equinoctial Time, adding 0 ^d . 511897.	From Mean Noon of January 1.	
	At Mean Midnight,						Day of the Year.	Fraction of the Year.*
	Logarithms of							
	A	B	C	D		Days.		
1	—1 ^o .1027	+1 ^o .1784	—8 ^o .4414	+0 ^o .9325	2403364	315	31	.0849
2	1 ^o .1109	1 ^o .1712	8 ^o .4000	0 ^o .9313	2403365	316	32	.0876
3	1 ^o .1189	1 ^o .1638	8 ^o .3551	0 ^o .9302	2403366	317	33	.0904
4	—1 ^o .1265	+1 ^o .1561	—8 ^o .3056	+0 ^o .9290	2403367	318	34	.0931
5	1 ^o .1340	1 ^o .1481	8 ^o .2504	0 ^o .9278	2403368	319	35	.0958
6	1 ^o .1411	1 ^o .1399	8 ^o .1878	0 ^o .9266	2403369	320	36	.0986
7	—1 ^o .1480	+1 ^o .1313	—8 ^o .1163	+0 ^o .9255	2403370	321	37	.1013
8	1 ^o .1546	1 ^o .1225	8 ^o .0318	0 ^o .9243	2403371	322	38	.1040
9	1 ^o .1611	1 ^o .1133	7 ^o .9279	0 ^o .9231	2403372	323	39	.1068
10	—1 ^o .1672	+1 ^o .1038	—7 ^o .7931	+0 ^o .9219	2403373	324	40	.1095
11	1 ^o .1732	1 ^o .0940	7 ^o .5999	0 ^o .9207	2403374	325	41	.1123
12	1 ^o .1790	1 ^o .0838	7 ^o .2528	0 ^o .9196	2403375	326	42	.1150
13	—1 ^o .1845	+1 ^o .0732	+6 ^o .5771	+0 ^o .9184	2403376	327	43	.1177
14	1 ^o .1898	1 ^o .0622	7 ^o .4014	0 ^o .9173	2403377	328	44	.1205
15	1 ^o .1950	1 ^o .0508	7 ^o .6646	0 ^o .9162	2403378	329	45	.1232
16	—1 ^o .1999	+1 ^o .0390	+7 ^o .8261	+0 ^o .9150	2403379	330	46	.1259
17	1 ^o .2047	1 ^o .0267	7 ^o .9420	0 ^o .9139	2403380	331	47	.1287
18	1 ^o .2092	1 ^o .0139	8 ^o .0322	0 ^o .9128	2403381	332	48	.1314
19	—1 ^o .2136	+1 ^o .0005	+8 ^o .1062	+0 ^o .9117	2403382	333	49	.1342
20	1 ^o .2178	0 ^o .9866	8 ^o .1685	0 ^o .9107	2403383	334	50	.1369
21	1 ^o .2218	0 ^o .9722	8 ^o .2225	0 ^o .9096	2403384	335	51	.1396
22	—1 ^o .2257	+0 ^o .9571	+8 ^o .2697	+0 ^o .9086	2403385	336	52	.1424
23	1 ^o .2294	0 ^o .9413	8 ^o .3118	0 ^o .9076	2403386	337	53	.1451
24	1 ^o .2329	0 ^o .9248	8 ^o .3497	0 ^o .9066	2403387	338	54	.1478
25	—1 ^o .2362	+0 ^o .9075	+8 ^o .3840	+0 ^o .9056	2403388	339	55	.1506
26	1 ^o .2394	0 ^o .8893	8 ^o .4155	0 ^o .9047	2403389	340	56	.1533
27	1 ^o .2425	0 ^o .8703	8 ^o .4447	0 ^o .9038	2403390	341	57	.1561
28	—1 ^o .2454	+0 ^o .8502	+8 ^o .4717	+0 ^o .9029	2403391	342	58	.1588
29	1 ^o .2481	0 ^o .8291	8 ^o .4969	0 ^o .9020	2403392	343	59	.1615
30	—1 ^o .2507	+0 ^o .8067	+8 ^o .5205	+0 ^o .9011	2403393	344	60	.1643

* Add .0012 if Fraction be required for the time t , see page 329.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be added to Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
		^h ^m ^s	^s	[°] ['] ["]	["]	^m ^s	^m ^s	^s
Sun.	1	22 50 45.99	9.349	S. 7 21 19.1	57.13	1 5.37	12 27.64	0.506
Mon.	2	22 54 30.10	9.347	6 58 24.9	57.38	1 5.30	12 15.24	0.527
Tues.	3	22 58 13.70	9.307	6 35 24.8	57.61	1 5.23	12 2.33	0.548
Wed.	4	23 1 56.83	9.288	6 12 19.4	57.83	1 5.17	11 48.94	0.567
Thur.	5	23 5 39.50	9.269	5 49 9.0	58.03	1 5.11	11 35.10	0.586
Frid.	6	23 9 21.73	9.252	5 25 54.0	58.21	1 5.05	11 20.82	0.604
Sat.	7	23 13 3.54	9.234	5 2 34.7	58.38	1 4.99	11 6.12	0.621
Sun.	8	23 16 44.95	9.218	4 39 11.5	58.54	1 4.93	10 51.02	0.637
Mon.	9	23 20 25.99	9.203	4 15 44.8	58.68	1 4.88	10 35.55	0.652
Tues.	10	23 24 6.69	9.189	3 52 14.9	58.80	1 4.83	10 19.74	0.665
Wed.	11	23 27 47.08	9.177	3 28 42.2	58.91	1 4.78	10 3.62	0.678
Thur.	12	23 31 27.18	9.165	3 5 7.0	59.01	1 4.74	9 47.21	0.690
Frid.	13	23 35 7.01	9.154	2 41 29.6	59.09	1 4.70	9 30.53	0.700
Sat.	14	23 38 46.58	9.144	2 17 50.5	59.16	1 4.66	9 13.60	0.710
Sun.	15	23 42 25.94	9.136	1 54 10.0	59.21	1 4.63	8 56.45	0.719
Mon.	16	23 46 5.10	9.128	1 30 28.5	59.25	1 4.60	8 39.10	0.727
Tues.	17	23 49 44.07	9.120	1 6 46.2	59.27	1 4.57	8 21.57	0.734
Wed.	18	23 53 22.86	9.113	0 43 3.7	59.27	1 4.54	8 3.87	0.741
Thur.	19	23 57 1.51	9.108	S. 0 19 21.3	59.26	1 4.52	7 46.02	0.746
Frid.	20	0 0 40.03	9.103	N. 0 4 20.6	59.23	1 4.50	7 28.04	0.752
Sat.	21	0 4 18.44	9.099	0 28 1.8	59.19	1 4.48	7 9.94	0.756
Sun.	22	0 7 56.76	9.095	0 51 41.8	59.14	1 4.47	6 51.75	0.759
Mon.	23	0 11 35.01	9.092	1 15 20.3	59.06	1 4.46	6 33.49	0.762
Tues.	24	0 15 13.20	9.090	1 38 56.7	58.97	1 4.45	6 15.18	0.764
Wed.	25	0 18 51.33	9.088	2 2 30.8	58.87	1 4.45	5 56.82	0.765
Thur.	26	0 22 29.44	9.088	2 26 2.4	58.75	1 4.45	5 38.44	0.766
Frid.	27	0 26 7.56	9.089	2 49 30.8	58.61	1 4.45	5 20.05	0.766
Sat.	28	0 29 45.70	9.090	3 12 55.8	58.46	1 4.45	5 1.69	0.765
Sun.	29	0 33 23.86	9.091	3 36 17.1	58.30	1 4.46	4 43.34	0.764
Mon.	30	0 37 2.05	9.093	3 59 34.3	58.12	1 4.47	4 25.03	0.761
Tues.	31	0 40 40.31	9.096	4 22 46.9	57.93	1 4.48	4 6.79	0.758
Wed.	32	0 44 18.65	9.100	N. 4 45 54.7	57.72	1 4.50	3 48.63	0.755

* Mean Time of the Semidiameter passing may be found by subtracting 0.18 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be subtracted from Mean Time.	Sidereal Time.
		Apparent Right Ascension.	Apparent Declination.	Semidiam.*		
		h m s	° ' "	' "	m s	h m s
Sun.	1	22 50 44.04	S. 7 21 30.9	16 10.0	12 27.75	22 38 16.29
Mon.	2	22 54 28.19	6 58 36.6	16 9.8	12 15.35	22 42 12.84
Tues.	3	22 58 11.83	6 35 36.4	16 9.6	12 2.44	22 46 9.39
Wed.	4	23 1 55.00	6 12 30.8	16 9.3	11 49.06	22 50 5.94
Thur.	5	23 5 37.71	5 49 20.2	16 9.1	11 35.21	22 54 2.50
Frid.	6	23 9 19.98	5 26 5.0	16 8.8	11 20.93	22 57 59.05
Sat.	7	23 13 1.83	5 2 45.5	16 8.6	11 6.23	23 1 55.60
Sun.	8	23 16 43.28	4 39 22.1	16 8.3	10 51.13	23 5 52.15
Mon.	9	23 20 24.36	4 15 55.2	16 8.1	10 35.66	23 9 48.70
Tues.	10	23 24 5.11	3 52 25.1	16 7.8	10 19.85	23 13 45.26
Wed.	11	23 27 45.54	3 28 52.1	16 7.6	10 3.73	23 17 41.81
Thur.	12	23 31 25.68	3 5 16.6	16 7.3	9 47.32	23 21 38.36
Frid.	13	23 35 5.55	2 41 39.0	16 7.0	9 30.64	23 25 34.91
Sat.	14	23 38 45.17	2 17 59.6	16 6.7	9 13.71	23 29 31.46
Sun.	15	23 42 24.58	1 54 18.8	16 6.4	8 56.56	23 33 28.02
Mon.	16	23 46 3.78	1 30 37.0	16 6.1	8 39.21	23 37 24.57
Tues.	17	23 49 42.79	1 6 54.5	16 5.9	8 21.67	23 41 21.12
Wed.	18	23 53 21.63	0 43 11.7	16 5.6	8 3.96	23 45 17.67
Thur.	19	23 57 0.33	S. 0 19 29.0	16 5.3	7 46.11	23 49 14.22
Frid.	20	0 0 38.90	N. 0 4 13.3	16 5.0	7 28.13	23 53 10.77
Sat.	21	0 4 17.35	0 27 54.8	16 4.8	7 10.03	23 57 7.32
Sun.	22	0 7 55.72	0 51 35.1	16 4.5	6 51.84	0 1 3.88
Mon.	23	0 11 34.02	1 15 13.8	16 4.2	6 33.58	0 5 0.43
Tues.	24	0 15 12.25	1 38 50.5	16 3.9	6 15.27	0 8 56.98
Wed.	25	0 18 50.43	2 2 25.0	16 3.7	5 56.90	0 12 53.53
Thur.	26	0 22 28.59	2 25 56.9	16 3.4	5 38.51	0 16 50.08
Frid.	27	0 26 6.76	2 49 25.6	16 3.1	5 20.12	0 20 46.64
Sat.	28	0 29 44.94	3 12 50.9	16 2.8	5 1.75	0 24 43.19
Sun.	29	0 33 23.14	3 36 12.5	16 2.6	4 43.40	0 28 39.74
Mon.	30	0 37 1.38	3 59 30.0	16 2.3	4 25.09	0 32 36.29
Tues.	31	0 40 39.69	4 22 43.0	16 2.0	4 6.85	0 36 32.84
Wed.	32	0 44 18.07	N. 4 45 51.1	16 1.8	3 48.68	0 40 29.39

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	341° 13' 44".4	S. 0° 64'	9.9962994	15° 50'.4	15° 55'.8	58° 2'.1	58° 21'.8
2	342° 13' 52".4	0° 64'	9.9964068	16° 1'.2	16° 6'.5	58° 41'.6	59° 1'.0
3	343° 13' 58".3	0° 59'	9.9965154	16° 11'.6	16° 16'.5	59° 19'.8	59° 37'.6
4	344° 14' 1'.9	0° 52'	9.9966251	16° 20'.9	16° 24'.8	59° 53'.8	60° 8'.0
5	345° 14' 3".4	0° 42'	9.9967361	16° 28'.0	16° 30'.4	60° 19'.7	60° 28'.5
6	346° 14' 2".8	0° 30'	9.9968485	16° 31'.8	16° 32'.3	60° 33'.9	60° 35'.6
7	347° 14' 0".0	S. 0° 15'	9.9969624	16° 31'.7	16° 30'.0	60° 33'.4	60° 27'.3
8	348° 13' 55".1	0° 00'	9.9970778	16° 27'.3	16° 23'.5	60° 17'.2	60° 3'.4
9	349° 13' 48".2	N. 0° 13'	9.9971947	16° 18'.8	16° 13'.3	59° 46'.1	59° 25'.9
10	350° 13' 39".5	0° 26'	9.9973131	16° 7'.1	16° 0'.4	59° 13'.2	58° 38'.6
11	351° 13' 28".9	0° 36'	9.9974328	15° 53'.3	15° 46'.1	58° 12'.8	57° 46'.2
12	352° 13' 16".6	0° 43'	9.9975537	15° 38'.8	15° 31'.7	57° 19'.6	56° 53'.4
13	353° 13' 2'.5	0° 48'	9.9976757	15° 24'.8	15° 18'.3	56° 28'.2	56° 4'.3
14	354° 12' 46".8	0° 50'	9.9977986	15° 12'.2	15° 6'.7	55° 42'.1	55° 21'.9
15	355° 12' 29".4	0° 48'	9.9979223	15° 1'.8	14° 57'.5	55° 3'.8	54° 48'.2
16	356° 12' 10".3	0° 45'	9.9980467	14° 53'.9	14° 51'.1	54° 35'.1	54° 24'.6
17	357° 11' 49".4	0° 40'	9.9981716	14° 48'.9	14° 47'.4	54° 16'.7	54° 11'.3
18	358° 11' 26".8	0° 33'	9.9982967	14° 46'.6	14° 46'.5	54° 8'.4	54° 7'.9
19	359° 11' 2'.4	0° 24'	9.9984219	14° 47'.0	14° 48'.1	54° 9'.7	54° 13'.7
20	0° 10' 36".1	0° 14'	9.9985474	14° 49'.7	14° 51'.8	54° 19'.7	54° 27'.4
21	1° 10' 7".9	N. 0° 02'	9.9986729	14° 54'.4	14° 57'.3	54° 36'.8	54° 47'.6
22	2° 9' 37".8	S. 0° 09'	9.9987982	15° 0'.6	15° 4'.2	54° 59'.6	55° 12'.6
23	3° 9' 5".8	0° 19'	9.9989233	15° 7'.9	15° 11'.8	55° 26'.3	55° 40'.7
24	4° 8' 31".7	0° 30'	9.9990481	15° 15'.9	15° 19'.9	55° 55'.4	56° 10'.3
25	5° 7' 55".6	0° 40'	9.9991724	15° 24'.0	15° 28'.1	56° 25'.4	56° 40'.4
26	6° 7' 17".4	0° 48'	9.9992963	15° 32'.2	15° 36'.2	56° 55'.3	57° 10'.0
27	7° 6' 37".0	0° 53'	9.9994199	15° 40'.1	15° 44'.0	57° 24'.4	57° 38'.5
28	8° 5' 54".4	0° 56'	9.9995431	15° 47'.7	15° 51'.4	57° 52'.2	58° 5'.6
29	9° 5' 9".6	0° 56'	9.9996659	15° 54'.9	15° 58'.3	58° 18'.6	58° 31'.1
30	10° 4' 22".5	0° 52'	9.9997885	16° 1'.6	16° 4'.7	58° 43'.1	58° 54'.5
31	11° 3' 33".0	0° 44'	9.9999110	16° 7'.6	16° 10'.3	59° 5'.1	59° 14'.8
32	12° 2' 41".1	S. 0° 35'	0.0000334	16° 12'.6	16° 14'.6	59° 23'.4	59° 30'.7

MEAN TIME.

Day of the Week.	Day of the Month.	THE MOON'S					
		Longitude.		Latitude.		Age.	Meridian
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.
Sun.	1	62° 18' 40".4	69° 9' 44".6	S. 5° 17' 17".0	S. 5° 16' 46".3	6.9	5 39.1
Mon.	2	76 5 23.0	83 5 34.6	5 11 40.8	5 1 55.7	7.9	6 34.5
Tues.	3	90 10 13.4	97 19 7.6	4 47 30.9	4 28 31.3	8.9	7 32.2
Wed.	4	104 32 0.2	111 48 27.1	4 5 7.4	3 37 35.7	9.9	8 31.5
Thur.	5	119 7 57.2	126 29 53.7	3 6 19.3	2 31 47.3	10.9	9 31.0
Frid.	6	133 53 32.7	141 18 5.5	1 54 35.2	S. 1 15 22.9	11.9	10 29.7
Sat.	7	148 42 39.6	156 6 20.1	S. 0 34 54.7	N. 0 6 3.3	12.9	11 26.5
Sun.	8	163 28 11.7	170 47 20.3	N. 0 46 44.3	1 26 22.8	13.9	12 21.4
Mon.	9	178 2 55.3	185 14 11.1	2 4 16.2	2 39 46.9	14.9	13 14.3
Tues.	10	192 20 28.4	199 21 15.4	3 12 22.4	3 41 36.4	15.9	14 5.6
Wed.	11	206 16 8.8	213 4 53.6	4 7 8.9	4 28 46.3	16.9	14 55.9
Thur.	12	219 47 23.3	226 23 39.4	4 46 20.3	4 59 47.7	17.9	15 45.4
Frid.	13	232 53 51.2	239 18 14.0	5 9 9.6	5 14 30.1	18.9	16 34.5
Sat.	14	245 37 9.4	251 51 3.2	5 15 56.1	5 13 36.2	19.9	17 23.4
Sun.	15	258 0 25.5	264 5 48.8	5 7 40.4	4 58 19.7	20.9	18 11.9
Mon.	16	270 7 48.1	276 6 59.6	4 45 45.6	4 30 9.9	21.9	18 59.9
Tues.	17	282 4 0.0	287 59 26.2	4 11 44.8	3 50 42.9	22.9	19 47.3
Wed.	18	293 53 54.8	299 48 1.3	3 27 16.9	3 1 40.2	23.9	20 34.0
Thur.	19	305 42 19.8	311 37 22.7	2 34 6.9	2 4 51.6	24.9	21 20.0
Frid.	20	317 33 40.6	323 31 41.3	1 34 9.9	N. 1 2 18.9	25.9	22 5.3
Sat.	21	329 31 50.3	335 34 30.3	N. 0 29 36.3	S. 0 3 38.3	26.9	22 50.1
Sun.	22	341 40 0.4	347 48 37.2	S. 0 37 4.3	1 10 19.5	27.9	23 35.0
Mon.	23	354 0 33.7	0 15 59.5	1 43 0.9	2 14 44.3	28.9	0
Tues.	24	6 35 1.3	12 57 42.4	2 45 4.9	3 13 37.7	0.2	0 20.2
Wed.	25	19 24 3.9	25 54 1.4	3 39 57.6	4 3 40.5	1.2	1 6.4
Thur.	26	32 27 32.9	39 4 31.5	4 24 23.1	4 41 44.1	2.2	1 54.1
Frid.	27	45 44 49.6	52 28 18.9	4 55 24.3	5 5 7.1	3.2	2 43.7
Sat.	28	59 14 50.4	66 4 15.0	5 10 39.2	5 11 50.2	4.2	3 35.7
Sun.	29	72 56 23.9	79 51 8.5	5 8 34.4	5 0 49.3	5.2	4 30.0
Mon.	30	86 48 20.2	93 47 50.8	4 48 36.9	4 32 3.8	6.2	5 26.4
Tues.	31	100 49 31.6	107 53 13.7	4 11 20.7	3 46 43.0	7.2	6 23.9
Wed.	32	114 58 46.5	122 5 58.3	S. 3 18 30.4	S. 2 47 7.2	8.2	7 21.7

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
<i>SUNDAY 1.</i>				<i>TUESDAY 3.</i>			
	<i>h m s</i>	<i>N. ° ' "</i>	<i>"</i>		<i>h m s</i>	<i>N. ° ' "</i>	<i>"</i>
0	4 5 14.93	N. 15 26 57.9	63.67	0	6 0 43.00	N. 18 39 43.6	13.50
1	4 7 33.34	15 33 17.4	62.83	1	6 3 12.74	18 41 0.9	12.27
2	4 9 52.01	15 39 31.9	61.98	2	6 5 42.64	18 42 10.8	11.04
3	4 12 10.95	15 45 41.2	61.13	3	6 8 12.71	18 43 13.4	9.81
4	4 14 30.16	15 51 45.4	60.26	4	6 10 42.95	18 44 8.5	8.56
5	4 16 49.64	15 57 44.3	59.38	5	6 13 13.35	18 44 56.1	7.32
6	4 19 9.38	16 3 37.9	58.49	6	6 15 43.90	18 45 36.3	6.07
7	4 21 29.39	16 9 26.2	57.59	7	6 18 14.60	18 46 9.0	4.82
8	4 23 49.67	16 15 9.0	56.68	8	6 20 45.44	18 46 34.1	3.56
9	4 26 10.21	16 20 46.4	55.77	9	6 23 16.43	18 46 51.7	2.30
10	4 28 31.02	16 26 18.3	54.85	10	6 25 47.56	18 47 1.7	1.03
11	4 30 52.09	16 31 44.6	53.91	11	6 28 18.82	18 47 4.1	0.23
12	4 33 13.42	16 37 5.2	52.97	12	6 30 50.21	18 46 58.9	1.51
13	4 35 35.02	16 42 20.2	52.02	13	6 33 21.72	18 46 46.0	2.78
14	4 37 56.87	16 47 29.4	51.06	14	6 35 53.35	18 46 25.5	4.05
15	4 40 18.99	16 52 32.9	50.09	15	6 38 25.10	18 45 57.4	5.33
16	4 42 41.37	16 57 30.5	49.11	16	6 40 56.96	18 45 21.5	6.62
17	4 45 4.00	17 2 22.2	48.12	17	6 43 28.92	18 44 37.9	7.90
18	4 47 26.89	17 7 7.9	47.12	18	6 46 0.99	18 43 46.7	9.18
19	4 49 50.04	17 11 47.6	46.12	19	6 48 33.15	18 42 47.7	10.48
20	4 52 13.44	17 16 21.3	45.11	20	6 51 5.40	18 41 40.9	11.77
21	4 54 37.09	17 20 48.9	44.08	21	6 53 37.74	18 40 26.5	13.05
22	4 57 1.00	17 25 10.2	43.04	22	6 56 10.16	18 39 4.3	14.35
23	4 59 25.15	N. 17 29 25.4	42.01	23	6 58 42.66	N. 18 37 34.3	15.65
<i>MONDAY 2.</i>				<i>WEDNESDAY 4.</i>			
	<i>h m s</i>	<i>N. ° ' "</i>	<i>"</i>		<i>h m s</i>	<i>N. ° ' "</i>	<i>"</i>
0	5 1 49.55	N. 17 33 34.3	40.96	0	7 1 15.23	N. 18 35 56.5	16.94
1	5 4 14.20	17 37 36.9	39.90	1	7 3 47.87	18 34 11.0	18.23
2	5 6 39.08	17 41 33.1	38.83	2	7 6 20.57	18 32 17.7	19.52
3	5 9 4.21	17 45 22.9	37.76	3	7 8 53.33	18 30 16.7	20.81
4	5 11 29.58	17 49 6.2	36.68	4	7 11 26.14	18 28 8.0	22.11
5	5 13 55.19	17 52 43.0	35.58	5	7 13 59.00	18 25 51.4	23.41
6	5 16 21.03	17 56 13.2	34.48	6	7 16 31.91	18 23 27.1	24.69
7	5 18 47.10	17 59 36.8	33.38	7	7 19 4.85	18 20 55.1	25.97
8	5 21 13.40	18 2 53.8	32.27	8	7 21 37.82	18 18 15.4	27.26
9	5 23 39.92	18 6 4.0	31.14	9	7 24 10.82	18 15 27.9	28.56
10	5 26 6.67	18 9 7.5	30.01	10	7 26 43.85	18 12 32.7	29.85
11	5 28 33.64	18 12 4.2	28.87	11	7 29 16.90	18 9 29.7	31.13
12	5 31 0.83	18 14 54.0	27.73	12	7 31 49.96	18 6 19.1	32.41
13	5 33 28.24	18 17 36.9	26.58	13	7 34 23.03	18 3 0.8	33.69
14	5 35 55.85	18 20 12.9	25.43	14	7 36 56.10	17 59 34.8	34.97
15	5 38 23.68	18 22 42.0	24.27	15	7 39 29.17	17 56 1.2	36.24
16	5 40 51.71	18 25 4.1	23.09	16	7 42 2.23	17 52 19.9	37.51
17	5 43 19.95	18 27 19.1	21.91	17	7 44 35.28	17 48 31.1	38.78
18	5 45 48.39	18 29 27.0	20.73	18	7 47 8.32	17 44 34.6	40.04
19	5 48 17.02	18 31 27.8	19.53	19	7 49 41.34	17 40 30.6	41.30
20	5 50 45.84	18 33 21.4	18.33	20	7 52 14.33	17 36 19.0	42.56
21	5 53 14.86	18 35 7.8	17.13	21	7 54 47.29	17 31 59.9	43.81
22	5 55 44.06	18 36 47.0	15.93	22	7 57 20.22	17 27 33.3	45.05
23	5 58 13.44	18 38 18.9	14.72	23	7 59 53.11	17 22 59.3	46.28
24	6 0 43.00	N. 18 39 43.6	13.50	24	8 2 25.96	N. 17 18 17.9	47.52

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
THURSDAY 5.				SATURDAY 7.			
0	h 8 2 25.96	N. 17 18 17.9	47.52	0	h 10 2 36.61	N. 11 23 2.6	96.52
1	8 4 58.76	17 13 29.0	48.76	1	10 5 3.01	11 13 21.3	97.25
2	8 7 31.51	17 8 32.8	49.98	2	10 7 29.22	11 3 35.6	97.98
3	8 10 4.20	17 3 29.3	51.19	3	10 9 55.24	10 53 45.6	98.68
4	8 12 36.83	16 58 18.5	52.41	4	10 12 21.07	10 43 51.4	99.37
5	8 15 9.40	16 53 0.4	53.62	5	10 14 46.70	10 33 53.1	100.05
6	8 17 41.90	16 47 35.1	54.82	6	10 17 12.15	10 23 50.8	100.72
7	8 20 14.32	16 42 2.6	56.01	7	10 19 37.41	10 13 44.5	101.37
8	8 22 46.66	16 36 23.0	57.19	8	10 22 2.47	10 3 34.4	102.00
9	8 25 18.92	16 30 36.3	58.37	9	10 24 27.34	9 53 20.5	102.62
10	8 27 51.10	16 24 42.6	59.53	10	10 26 52.01	9 43 2.9	103.23
11	8 30 23.18	16 18 41.9	60.70	11	10 29 16.49	9 32 41.7	103.83
12	8 32 55.17	16 12 34.2	61.86	12	10 31 40.78	9 22 16.9	104.42
13	8 35 27.06	16 6 19.6	63.00	13	10 34 4.87	9 11 48.7	104.98
14	8 37 58.85	15 59 58.2	64.14	14	10 36 28.77	9 1 17.2	105.53
15	8 40 30.53	15 53 29.9	65.27	15	10 38 52.48	8 50 42.4	106.07
16	8 43 2.11	15 46 54.9	66.39	16	10 41 15.99	8 40 4.4	106.58
17	8 45 33.57	15 40 13.2	67.50	17	10 43 39.30	8 29 23.4	107.08
18	8 48 4.91	15 33 24.9	68.60	18	10 46 2.42	8 18 39.4	107.58
19	8 50 36.14	15 26 30.0	69.70	19	10 48 25.35	8 7 52.4	108.07
20	8 53 7.24	15 19 28.5	70.78	20	10 50 48.08	7 57 2.6	108.53
21	8 55 38.21	15 12 20.6	71.85	21	10 53 10.62	7 46 10.1	108.97
22	8 58 9.05	15 5 6.3	72.92	22	10 55 32.97	7 35 15.0	109.40
23	9 0 39.76	N. 14 57 45.6	73.98	23	10 57 55.12	N. 7 24 17.3	109.82
FRIDAY 6.				SUNDAY 8.			
0	9 3 10.34	N. 14 50 18.6	75.02	0	11 0 17.07	N. 7 13 17.1	110.23
1	9 5 40.78	14 42 45.4	76.04	1	11 2 38.84	7 2 14.5	110.62
2	9 8 11.07	14 35 6.1	77.06	2	11 5 0.41	6 51 9.7	110.99
3	9 10 41.21	14 27 20.6	78.08	3	11 7 21.79	6 40 2.6	111.36
4	9 13 11.21	14 19 29.1	79.08	4	11 9 42.99	6 28 53.4	111.70
5	9 15 41.06	14 11 31.7	80.06	5	11 12 3.99	6 17 42.2	112.03
6	9 18 10.76	14 3 28.4	81.04	6	11 14 24.81	6 6 29.0	112.35
7	9 20 40.30	13 55 19.2	82.01	7	11 16 45.43	5 55 14.0	112.65
8	9 23 9.68	13 47 4.3	82.96	8	11 19 5.87	5 43 57.2	112.94
9	9 25 38.90	13 38 43.7	83.91	9	11 21 26.12	5 32 38.7	113.22
10	9 28 7.96	13 30 17.4	84.84	10	11 23 46.19	5 21 18.6	113.48
11	9 30 36.85	13 21 45.6	85.75	11	11 26 6.07	5 9 56.9	113.73
12	9 33 5.58	13 13 8.4	86.65	12	11 28 25.77	4 58 33.8	113.96
13	9 35 34.14	13 4 25.8	87.55	13	11 30 45.29	4 47 9.4	114.18
14	9 38 2.53	12 55 37.8	88.43	14	11 33 4.62	4 35 43.7	114.38
15	9 40 30.74	12 46 44.6	89.30	15	11 35 32.78	4 24 16.8	114.57
16	9 42 58.78	12 37 46.2	90.15	16	11 37 42.76	4 12 48.9	114.74
17	9 45 26.64	12 28 42.8	90.99	17	11 40 1.56	4 1 19.9	114.91
18	9 47 54.33	12 19 34.3	91.82	18	11 42 20.18	3 49 50.0	115.05
19	9 50 21.83	12 10 20.9	92.64	19	11 44 38.62	3 38 19.3	115.18
20	9 52 49.15	12 1 2.6	93.44	20	11 46 56.90	3 26 47.8	115.31
21	9 55 16.29	11 51 39.6	94.23	21	11 49 15.00	3 15 15.6	115.42
22	9 57 43.25	11 42 11.9	95.01	22	11 51 32.93	3 3 42.8	115.51
23	10 0 10.02	11 32 39.5	95.78	23	11 53 50.69	2 52 9.5	115.58
24	10 2 36.61	N. 11 23 2.6	96.52	24	11 56 8.28	N. 2 40 35.8	115.64

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 9.				WEDNESDAY 11.			
0	h m s 28	N. 2 40 35	115° 64'	0	h m s 79	S. 6 18 14	104° 55'
1	11 58 25	2 29 18	115° 69'	1	13 45 38	6 28 40	104° 06'
2	12 0 42	2 17 27	115° 73'	2	13 47 49	6 39 36	103° 57'
3	12 3 07	2 5 53	115° 76'	3	13 50 06	6 49 23	103° 08'
4	12 5 17	1 54 18	115° 77'	4	13 52 11	6 59 40	102° 57'
5	12 7 33	1 42 43	115° 77'	5	13 54 22	7 9 54	102° 05'
6	12 9 50	1 31 9	115° 76'	6	13 56 33	7 20 51	101° 52'
7	12 12 6	1 19 34	115° 73'	7	13 58 44	7 30 12	100° 98'
8	12 14 23	1 8 05	115° 68'	8	14 0 55	7 40 16	100° 45'
9	12 16 39	0 56 26	115° 62'	9	14 3 6	7 50 18	99° 90'
10	12 18 55	0 44 53	115° 56'	10	14 5 16	8 0 15	99° 33'
11	12 21 11	0 33 19	115° 48'	11	14 7 27	8 10 10	98° 77'
12	12 23 26	0 21 47	115° 38'	12	14 9 38	8 20 09	98° 20'
13	12 25 42	N. 0 10 15	115° 28'	13	14 11 48	8 29 48	97° 62'
14	12 27 57	S. 0 1 16	115° 16'	14	14 13 58	8 39 32	97° 03'
15	12 30 13	0 12 46	115° 03'	15	14 16 9	8 49 12	96° 43'
16	12 32 28	0 24 16	114° 90'	16	14 18 19	8 58 49	95° 83'
17	12 34 43	0 35 45	114° 75'	17	14 20 29	9 8 22	95° 22'
18	12 36 57	0 47 13	114° 58'	18	14 22 39	9 17 52	94° 61'
19	12 39 12	0 58 40	114° 40'	19	14 24 49	9 27 18	93° 99'
20	12 41 27	1 10 6	114° 22'	20	14 26 59	9 36 40	93° 36'
21	12 43 41	1 21 31	114° 01'	21	14 29 9	9 45 58	92° 72'
22	12 45 55	1 32 54	113° 79'	22	14 31 19	9 55 12	92° 08'
23	12 48 10	S. 1 44 16	113° 57'	23	14 33 29	S. 10 4 23	91° 43'
TUESDAY 10.				THURSDAY 12.			
0	12 50 24	S. 1 55 37	113° 34'	0	14 35 39	S. 10 13 29	90° 78'
1	12 52 38	2 6 56	113° 09'	1	14 37 49	10 22 32	90° 12'
2	12 54 51	2 18 14	112° 83'	2	14 39 58	10 31 31	89° 45'
3	12 57 5	2 29 30	112° 56'	3	14 42 8	10 40 26	88° 78'
4	12 59 19	2 40 45	112° 28'	4	14 44 17	10 49 16	88° 10'
5	13 1 32	2 51 58	111° 99'	5	14 46 27	10 58 3	87° 41'
6	13 3 45	3 3 9	111° 70'	6	14 48 36	11 6 45	86° 72'
7	13 5 58	3 14 18	111° 38'	7	14 50 46	11 15 23	86° 03'
8	13 8 11	3 25 25	111° 05'	8	14 52 55	11 23 58	85° 33'
9	13 10 24	3 36 31	110° 72'	9	14 55 5	11 32 27	84° 62'
10	13 12 37	3 47 34	110° 38'	10	14 57 14	11 40 53	83° 91'
11	13 14 50	3 58 35	110° 03'	11	14 59 23	11 49 14	83° 19'
12	13 17 3	4 9 34	109° 67'	12	15 1 32	11 57 31	82° 47'
13	13 19 15	4 20 31	109° 29'	13	15 3 42	12 5 44	81° 74'
14	13 21 28	4 31 26	108° 91'	14	15 5 51	12 13 52	81° 01'
15	13 23 40	4 42 18	108° 52'	15	15 8 0	12 21 56	80° 28'
16	13 25 52	4 53 8	108° 12'	16	15 10 9	12 29 56	79° 53'
17	13 28 4	5 3 55	107° 70'	17	15 12 18	12 37 50	78° 78'
18	13 30 16	5 14 40	107° 28'	18	15 14 27	12 45 41	78° 04'
19	13 32 28	5 25 23	106° 85'	19	15 16 36	12 53 27	77° 28'
20	13 34 40	5 36 3	106° 41'	20	15 18 45	13 1 8	76° 52'
21	13 36 52	5 46 40	105° 96'	21	15 20 54	13 8 45	75° 76'
22	13 39 3	5 57 14	105° 50'	22	15 23 2	13 16 17	74° 98'
23	13 41 15	6 7 46	105° 03'	23	15 25 11	13 23 45	74° 21'
24	13 43 26	S. 6 18 14	104° 55'	24	15 27 20	S. 13 31 8	73° 44'

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10m.	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10m.
FRIDAY 13.				SUNDAY 15.			
0	h m s	° ' "	"	0	h m s	° ' "	"
0	15 27 20.45	S. 13 31 8.5	73.44	0	17 9 46.89	S. 17 48 17.3	32.84
1	15 29 29.18	13 38 26.8	72.66	1	17 11 54.23	17 51 31.7	31.96
2	15 31 37.88	13 45 40.4	71.87	2	17 14 1.54	17 54 40.8	31.08
3	15 33 46.55	13 52 49.3	71.08	3	17 16 8.81	17 57 44.6	30.18
4	15 35 55.18	13 59 53.4	70.29	4	17 18 16.05	18 0 43.0	29.29
5	15 38 3.78	14 6 52.8	69.50	5	17 20 23.25	18 3 36.1	28.41
6	15 40 12.35	14 13 47.4	68.70	6	17 22 30.42	18 6 23.9	27.52
7	15 42 20.90	14 20 37.2	67.90	7	17 24 37.55	18 9 6.3	26.63
8	15 44 29.41	14 27 22.2	67.09	8	17 26 44.65	18 11 43.4	25.73
9	15 46 37.89	14 34 2.3	66.28	9	17 28 51.71	18 14 15.1	24.84
10	15 48 46.34	14 40 37.5	65.47	10	17 30 58.74	18 16 41.5	23.96
11	15 50 54.76	14 47 7.9	64.65	11	17 33 5.72	18 19 2.6	23.06
12	15 53 3.15	14 53 33.3	63.83	12	17 35 12.66	18 21 18.2	22.16
13	15 55 11.52	14 59 53.8	63.01	13	17 37 19.57	18 23 28.5	21.27
14	15 57 19.85	15 6 9.4	62.19	14	17 39 26.44	18 25 33.5	20.38
15	15 59 28.16	15 12 20.1	61.36	15	17 41 33.27	18 27 33.1	19.49
16	16 1 36.45	15 18 25.7	60.53	16	17 43 40.05	18 29 27.4	18.60
17	16 3 44.70	15 24 26.4	59.69	17	17 45 46.80	18 31 16.3	17.71
18	16 5 52.93	15 30 22.0	58.85	18	17 47 53.51	18 32 59.9	16.82
19	16 8 1.13	15 36 12.6	58.01	19	17 50 0.17	18 34 38.2	15.93
20	16 10 9.30	15 41 58.2	57.17	20	17 52 6.79	18 36 11.1	15.04
21	16 12 17.45	15 47 38.7	56.33	21	17 54 13.37	18 37 38.7	14.15
22	16 14 25.57	15 53 14.2	55.49	22	17 56 19.90	18 39 0.9	13.25
23	16 16 33.66	S. 15 58 44.6	54.63	23	17 58 26.39	S. 18 40 17.7	12.36
SATURDAY 14.				MONDAY 16.			
0	h m s	° ' "	"	0	h m s	° ' "	"
0	16 18 41.73	S. 16 4 9.8	53.78	0	18 0 32.83	S. 18 41 29.2	11.47
1	16 20 49.77	16 9 30.0	52.93	1	18 2 39.23	18 42 35.4	10.59
2	16 22 57.78	16 14 45.0	52.08	2	18 4 45.58	18 43 36.3	9.70
3	16 25 5.76	16 19 54.9	51.22	3	18 6 51.88	18 44 31.8	8.81
4	16 27 13.72	16 24 59.6	50.36	4	18 8 58.14	18 45 22.0	7.92
5	16 29 21.65	16 29 59.2	49.50	5	18 11 4.34	18 46 6.9	7.04
6	16 31 29.55	16 34 53.6	48.63	6	18 13 10.50	18 46 46.5	6.16
7	16 33 37.42	16 39 42.8	47.77	7	18 15 16.61	18 47 20.8	5.28
8	16 35 45.27	16 44 26.8	46.91	8	18 17 22.67	18 47 49.8	4.39
9	16 37 53.09	16 49 5.7	46.04	9	18 19 28.67	18 48 13.5	3.51
10	16 40 0.88	16 53 39.3	45.16	10	18 21 34.63	18 48 31.9	2.62
11	16 42 8.65	16 58 7.6	44.29	11	18 23 40.53	18 48 44.9	1.73
12	16 44 16.38	17 2 30.8	43.42	12	18 25 46.38	18 48 52.7	0.86
13	16 46 24.09	17 6 48.7	42.54	13	18 27 52.17	18 48 55.2	0.01
14	16 48 31.77	17 11 1.3	41.66	14	18 29 57.91	18 48 52.5	0.89
15	16 50 39.42	17 15 8.7	40.79	15	18 32 3.60	18 48 44.5	1.76
16	16 52 47.04	17 19 10.8	39.91	16	18 34 9.23	18 48 31.3	2.64
17	16 54 54.63	17 23 7.6	39.03	17	18 36 14.80	18 48 12.8	3.52
18	16 57 2.19	17 26 59.2	38.16	18	18 38 20.32	18 47 49.0	4.39
19	16 59 9.72	17 30 45.5	37.28	19	18 40 25.78	18 47 20.1	5.26
20	17 1 17.22	17 34 26.5	36.38	20	18 42 31.18	18 46 45.9	6.13
21	17 3 24.68	17 38 2.1	35.50	21	18 44 36.52	18 46 6.5	7.00
22	17 5 32.12	17 41 32.5	34.62	22	18 46 41.81	18 45 21.9	7.87
23	17 7 39.52	17 44 57.6	33.73	23	18 48 47.03	18 44 32.0	8.74
24	17 9 46.89	S. 17 48 17.3	32.84	24	18 50 52.20	S. 18 43 37.0	9.60

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 17.				THURSDAY 19.			
0	h m s	S. 18 43 37 0	9 60	0	h m s	S. 16 21 55 5	48 47
1	18 52 57 30	18 42 36 8	10 46	1	20 31 42 55	16 17 2 5	49 21
2	18 55 2 35	18 41 31 5	11 32	2	20 33 44 24	16 12 5 0	49 95
3	18 57 7 33	18 40 21 0	12 18	3	20 35 45 85	16 7 3 1	50 68
4	18 59 12 24	18 39 5 3	13 04	4	20 37 47 40	16 1 56 9	51 40
5	19 1 17 10	18 37 44 5	13 90	5	20 39 48 87	15 56 46 3	52 13
6	19 3 21 89	18 36 18 5	14 75	6	20 41 50 27	15 51 31 3	52 86
7	19 5 26 62	18 34 47 5	15 59	7	20 43 51 60	15 46 12 0	53 57
8	19 7 31 28	18 33 11 4	16 45	8	20 45 52 87	15 40 48 4	54 28
9	19 9 35 88	18 31 30 1	17 30	9	20 47 54 06	15 35 20 6	54 99
10	19 11 40 41	18 29 43 8	18 14	10	20 49 55 18	15 29 48 5	55 71
11	19 13 44 87	18 27 52 4	18 99	11	20 51 56 23	15 24 12 1	56 41
12	19 15 49 27	18 25 55 9	19 83	12	20 53 57 21	15 18 31 6	57 11
13	19 17 53 60	18 23 54 4	20 67	13	20 55 58 13	15 12 46 8	57 81
14	19 19 57 87	18 21 47 8	21 51	14	20 57 58 98	15 6 57 9	58 49
15	19 22 2 07	18 19 36 3	22 34	15	20 59 59 76	15 1 4 9	59 18
16	19 24 6 20	18 17 19 7	23 18	16	21 2 0 47	14 55 7 7	59 87
17	19 26 10 26	18 14 58 1	24 01	17	21 4 1 12	14 49 6 4	60 55
18	19 28 14 25	18 12 31 6	24 83	18	21 6 1 71	14 43 1 1	61 23
19	19 30 18 17	18 10 0 1	25 66	19	21 8 2 23	14 36 51 7	61 91
20	19 32 22 03	18 7 23 6	26 49	20	21 10 2 68	14 30 38 2	62 57
21	19 34 25 81	18 4 42 2	27 31	21	21 12 3 07	14 24 20 8	63 23
22	19 36 29 53	18 1 55 8	28 13	22	21 14 3 39	14 17 59 4	63 89
23	19 38 33 17	S. 17 59 4 6	28 94	23	21 16 3 66	S. 14 11 34 1	64 55
WEDNESDAY 18.				FRIDAY 20.			
0	19 40 36 74	S. 17 56 8 5	29 76	0	21 18 3 86	S. 14 5 4 8	65 21
1	19 42 40 24	17 53 7 5	30 57	1	21 20 4 00	13 58 31 6	65 85
2	19 44 43 67	17 50 1 6	31 38	2	21 22 4 07	13 51 54 6	66 49
3	19 46 47 03	17 46 50 9	32 18	3	21 24 4 09	13 45 13 7	67 14
4	19 48 50 32	17 43 35 4	32 99	4	21 26 4 05	13 38 28 9	67 78
5	19 50 53 53	17 40 15 0	33 80	5	21 28 3 95	13 31 40 4	68 40
6	19 52 56 67	17 36 49 8	34 59	6	21 30 3 79	13 24 48 1	69 02
7	19 54 59 74	17 33 19 9	35 38	7	21 32 3 57	13 17 52 1	69 65
8	19 57 2 74	17 29 45 2	36 18	8	21 34 3 30	13 10 52 3	70 27
9	19 59 5 67	17 26 5 7	36 98	9	21 36 2 98	13 3 48 9	70 88
10	20 1 8 52	17 22 21 5	37 77	10	21 38 2 60	12 56 41 8	71 49
11	20 3 11 30	17 18 32 5	38 55	11	21 40 2 16	12 49 31 0	72 10
12	20 5 14 00	17 14 38 9	39 33	12	21 42 1 68	12 42 16 6	72 69
13	20 7 16 63	17 10 40 6	40 11	13	21 44 1 14	12 34 58 7	73 28
14	20 9 19 19	17 6 37 6	40 88	14	21 46 0 56	12 27 37 2	73 87
15	20 11 21 68	17 2 30 0	41 65	15	21 47 59 92	12 20 12 2	74 46
16	20 13 24 10	16 58 17 8	42 42	16	21 49 59 23	12 12 43 7	75 04
17	20 15 26 44	16 54 0 9	43 19	17	21 51 58 50	12 5 11 7	75 61
18	20 17 28 71	16 49 39 5	43 95	18	21 53 57 73	11 57 36 3	76 18
19	20 19 30 90	16 45 13 5	44 71	19	21 55 56 91	11 49 57 5	76 75
20	20 21 33 03	16 40 42 9	45 47	20	21 57 56 04	11 42 15 3	77 32
21	20 23 35 08	16 36 7 8	46 23	21	21 59 55 13	11 34 29 7	77 88
22	20 25 37 05	16 31 28 2	46 98	22	22 1 54 18	11 26 40 8	78 42
23	20 27 38 96	16 26 44 1	47 73	23	22 3 53 19	11 18 48 7	78 96
24	20 29 40 79	S. 16 21 55 5	48 47	24	22 5 52 16	S. 11 10 53 3	79 50

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 21.				MONDAY 23.			
0	22 5 52.16	S. 11 10 53.3	79.50	0	23 40 43.90	S. 3 57 24.9	98.81
1	22 7 51.09	11 2 54.7	80.04	1	23 42 42.75	3 47 31.3	99.06
2	22 9 49.99	10 54 52.8	80.57	2	23 44 41.64	3 37 36.2	99.30
3	22 11 48.84	10 46 47.8	81.10	3	23 46 40.57	3 27 39.7	99.53
4	22 13 47.67	10 38 39.6	81.62	4	23 48 39.55	3 17 41.9	99.75
5	22 15 46.46	10 30 28.4	82.13	5	23 50 38.58	3 7 42.7	99.97
6	22 17 45.22	10 22 14.0	82.64	6	23 52 37.66	2 57 42.2	100.19
7	22 19 43.94	10 13 56.6	83.14	7	23 54 36.79	2 47 40.4	100.40
8	22 21 42.64	10 5 56.3	83.64	8	23 56 35.97	2 37 37.4	100.60
9	22 23 41.31	9 57 12.9	84.14	9	23 58 35.20	2 27 33.2	100.78
10	22 25 39.96	9 48 46.6	84.63	10	0 0 34.50	2 17 28.0	100.97
11	22 27 38.58	9 40 17.3	85.12	11	0 2 33.86	2 7 21.6	101.15
12	22 29 37.17	9 31 45.2	85.59	12	0 4 33.27	1 57 14.2	101.32
13	22 31 35.74	9 23 10.2	86.06	13	0 6 32.75	1 47 5.8	101.48
14	22 33 34.29	9 14 32.5	86.53	14	0 8 32.30	1 36 56.5	101.63
15	22 35 32.82	9 5 51.9	86.99	15	0 10 31.91	1 26 46.3	101.77
16	22 37 31.33	8 57 8.6	87.45	16	0 12 31.59	1 16 35.2	101.91
17	22 39 29.83	8 48 22.5	87.90	17	0 14 31.34	1 6 23.4	102.04
18	22 41 28.31	8 39 33.8	88.33	18	0 16 31.17	0 56 10.7	102.17
19	22 43 26.78	8 30 42.5	88.77	19	0 18 31.08	0 45 57.3	102.28
20	22 45 25.23	8 21 48.5	89.21	20	0 20 31.06	0 35 43.3	102.39
21	22 47 23.68	8 12 52.0	89.63	21	0 22 31.13	0 25 28.6	102.50
22	22 49 22.11	8 3 52.9	90.06	22	0 24 31.27	0 15 13.3	102.59
23	22 51 20.54	S. 7 54 51.3	90.47	23	0 26 31.50	S. 0 4 57.5	102.67
SUNDAY 22.				TUESDAY 24.			
0	22 53 18.96	S. 7 45 47.3	90.87	0	0 28 31.82	N. 0 5 18.8	102.75
1	22 55 17.38	7 36 40.8	91.28	1	0 30 32.23	0 15.35.5	102.82
2	22 57 15.80	7 27 31.9	91.68	2	0 32 32.72	0 25 52.6	102.88
3	22 59 14.21	7 18 20.7	92.07	3	0 34 33.31	0 36 10.1	102.94
4	23 1 12.63	7 9 7.1	92.46	4	0 36 34.00	0 46 27.9	102.98
5	23 3 11.05	6 59 51.2	92.83	5	0 38 34.78	0 56 45.9	103.02
6	23 5 9.48	6 50 33.1	93.21	6	0 40 35.66	1 7 4.1	103.05
7	23 7 7.91	6 41 12.7	93.57	7	0 42 36.65	1 17 22.5	103.07
8	23 9 6.35	6 31 50.2	93.93	8	0 44 37.74	1 27 41.0	103.08
9	23 11 4.80	6 22 25.5	94.29	9	0 46 38.93	1 37 59.5	103.08
10	23 13 3.26	6 12 58.7	94.63	10	0 48 40.23	1 48 18.0	103.07
11	23 15 1.73	6 3 29.9	94.97	11	0 50 41.64	1 58 36.4	103.06
12	23 17 0.21	5 53 59.1	95.31	12	0 52 43.17	2 8 54.8	103.05
13	23 18 58.71	5 44 26.2	95.64	13	0 54 44.81	2 19 13.0	103.02
14	23 20 57.24	5 34 51.4	95.96	14	0 56 46.56	2 29 31.0	102.98
15	23 22 55.78	5 25 14.7	96.28	15	0 58 48.43	2 39 48.8	102.94
16	23 24 54.35	5 15 36.1	96.58	16	1 0 50.43	2 50 6.3	102.88
17	23 26 52.94	5 5 55.7	96.88	17	1 2 52.55	3 0 23.4	102.82
18	23 28 51.56	4 56 13.5	97.18	18	1 4 54.79	3 10 40.1	102.75
19	23 30 50.21	4 46 29.5	97.47	19	1 6 57.16	3 20 56.4	102.67
20	23 32 48.88	4 36 43.8	97.75	20	1 8 59.65	3 31 12.2	102.58
21	23 34 47.58	4 26 56.5	98.03	21	1 11 2.28	3 41 27.4	102.48
22	23 36 46.32	4 17 7.5	98.29	22	1 13 5.05	3 51 42.0	102.38
23	23 38 45.09	4 7 17.0	98.55	23	1 15 7.95	4 1 56.0	102.27
24	23 40 43.90	S. 3 57 24.9	98.81	24	1 17 10.98	N. 4 12 9.2	102.14

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 1 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 1 ^m .
WEDNESDAY 25.				FRIDAY 27.			
0	^h 1 ^m 17 ^s 10.98	N. 4 12 9.2	102.14	0	^h 2 ^m 58 ^s 56.13	N. 11 50 49.5	85.32
1	1 19 14.16	4 22 21.7	102.01	1	3 1 8.15	11 59 19.7	84.73
2	1 21 17.48	4 32 33.4	101.87	2	3 3 20.39	12 7 46.3	84.14
3	1 23 20.94	4 42 44.2	101.72	3	3 5 32.85	12 16 9.4	83.54
4	1 25 24.55	4 52 54.0	101.56	4	3 7 45.53	12 24 28.8	82.92
5	1 27 28.31	5 3 2.9	101.40	5	3 9 58.43	12 32 44.4	82.29
6	1 29 32.21	5 13 10.8	101.22	6	3 12 11.55	12 40 56.3	81.66
7	1 31 36.27	5 23 17.6	101.03	7	3 14 24.89	12 49 4.3	81.01
8	1 33 40.49	5 33 23.2	100.83	8	3 16 38.46	12 57 8.4	80.36
9	1 35 44.86	5 43 27.6	100.63	9	3 18 52.25	13 5 8.6	79.69
10	1 37 49.38	5 53 30.8	100.42	10	3 21 6.26	13 13 4.7	79.01
11	1 39 54.07	6 3 32.7	100.20	11	3 23 20.49	13 20 56.8	78.33
12	1 41 58.91	6 13 33.2	99.97	12	3 25 34.96	13 28 44.7	77.63
13	1 44 3.92	6 23 32.3	99.73	13	3 27 49.65	13 36 28.4	76.93
14	1 46 9.10	6 33 29.9	99.48	14	3 30 4.56	13 44 7.9	76.22
15	1 48 14.44	6 43 26.0	99.23	15	3 32 19.70	13 51 43.1	75.50
16	1 50 19.95	6 53 20.6	98.96	16	3 34 35.06	13 59 13.9	74.77
17	1 52 25.64	7 3 13.5	98.68	17	3 36 50.65	14 6 40.3	74.03
18	1 54 31.50	7 13 4.7	98.38	18	3 39 6.47	14 14 2.2	73.28
19	1 56 37.53	7 22 54.1	98.08	19	3 41 22.52	14 21 19.6	72.52
20	1 58 43.74	7 32 41.7	97.78	20	3 43 38.79	14 28 32.4	71.74
21	2 0 50.13	7 42 27.5	97.47	21	3 45 55.28	14 35 40.5	70.96
22	2 2 56.70	7 52 11.4	97.15	22	3 48 12.00	14 42 43.9	70.17
23	2 5 3.45	N. 8 1 53.3	96.81	23	3 50 28.95	N. 14 49 42.6	69.38
THURSDAY 26.				SATURDAY 28.			
0	2 7 10.39	N. 8 11 33.1	96.46	0	3 52 46.12	N. 14 56 36.4	68.57
1	2 9 17.51	8 21 10.9	96.11	1	3 55 3.52	15 3 25.4	67.76
2	2 11 24.83	8 30 46.5	95.75	2	3 57 21.14	15 10 9.5	66.93
3	2 13 32.33	8 40 19.9	95.38	3	3 59 38.98	15 16 48.5	66.08
4	2 15 40.02	8 49 51.1	95.00	4	4 1 57.05	15 23 22.5	65.25
5	2 17 47.90	8 59 19.9	94.60	5	4 4 15.34	15 29 51.5	64.40
6	2 19 55.98	9 8 46.3	94.20	6	4 6 33.85	15 36 15.3	63.53
7	2 22 4.25	9 18 10.3	93.79	7	4 8 52.59	15 42 33.9	62.66
8	2 24 12.72	9 27 31.8	93.37	8	4 11 11.55	15 48 47.2	61.78
9	2 26 21.39	9 36 50.8	92.95	9	4 13 30.72	15 54 55.2	60.88
10	2 28 30.25	9 46 7.2	92.51	10	4 15 50.12	16 0 57.8	59.98
11	2 30 39.32	9 55 20.9	92.06	11	4 18 9.73	16 6 55.0	59.08
12	2 32 48.59	10 4 31.9	91.60	12	4 20 29.56	16 12 46.7	58.16
13	2 34 58.06	10 13 40.1	91.12	13	4 22 49.60	16 18 32.9	57.23
14	2 37 7.74	10 22 45.4	90.64	14	4 25 9.86	16 24 13.5	56.30
15	2 39 17.63	10 31 47.8	90.16	15	4 27 30.34	16 29 48.5	55.37
16	2 41 27.73	10 40 47.3	89.67	16	4 29 51.02	16 35 17.9	54.42
17	2 43 38.03	10 49 43.8	89.16	17	4 32 11.92	16 40 41.5	53.45
18	2 45 48.55	10 58 37.2	88.63	18	4 34 33.03	16 45 59.3	52.48
19	2 47 59.27	11 7 27.4	88.10	19	4 36 54.34	16 51 11.3	51.51
20	2 50 10.21	11 16 14.4	87.57	20	4 39 15.86	16 56 17.4	50.53
21	2 52 21.37	11 24 58.2	87.03	21	4 41 37.59	17 1 17.6	49.53
22	2 54 32.74	11 33 38.7	86.47	22	4 43 59.52	17 6 11.8	48.53
23	2 56 44.32	11 42 15.8	85.90	23	4 46 21.65	17 11 0.0	47.53
24	2 58 56.13	N. 11 50 49.5	85.32	24	4 48 43.98	N. 17 15 42.1	46.51

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SUNDAY 29.				TUESDAY 31.			
0	4 48 43.98	N.17 15 42.1	46.51	0	6 45 39.63	N.18 50 12.8	8.88
1	4 51 6.51	17 20 18.1	45.49	1	6 48 8.30	18 49 15.9	10.10
2	4 53 29.23	17 24 48.0	44.47	2	6 50 37.01	18 48 11.6	11.34
3	4 55 52.15	17 29 11.7	43.43	3	6 53 5.76	18 46 59.8	12.57
4	4 58 15.26	17 33 29.2	42.38	4	6 55 34.54	18 45 40.7	13.80
5	5 0 38.56	17 37 40.3	41.33	5	6 58 3.35	18 44 14.2	15.03
6	5 3 2.04	17 41 45.1	40.27	6	7 0 32.19	18 42 40.3	16.26
7	5 5 25.71	17 45 43.6	39.21	7	7 3 1.05	18 40 59.0	17.50
8	5 7 49.57	17 49 35.6	38.13	8	7 5 29.93	18 39 10.3	18.73
9	5 10 13.60	17 53 21.2	37.06	9	7 7 58.82	18 37 14.2	19.96
10	5 12 37.81	17 57 0.3	35.97	10	7 10 27.72	18 35 10.8	21.18
11	5 15 2.20	18 0 32.8	34.87	11	7 12 56.63	18 33 0.0	22.41
12	5 17 26.75	18 3 58.7	33.77	12	7 15 25.54	18 30 41.8	23.64
13	5 19 51.48	18 7 18.0	32.67	13	7 17 54.45	18 28 16.3	24.86
14	5 22 16.37	18 10 30.7	31.56	14	7 20 23.34	18 25 43.5	26.08
15	5 24 41.43	18 13 36.7	30.44	15	7 22 52.23	18 23 3.3	27.30
16	5 27 6.65	18 16 36.0	29.32	16	7 25 21.11	18 20 15.9	28.52
17	5 29 32.02	18 19 28.5	28.18	17	7 27 49.97	18 17 21.1	29.74
18	5 31 57.56	18 22 14.2	27.05	18	7 30 18.81	18 14 19.0	30.95
19	5 34 23.25	18 24 53.1	25.91	19	7 32 47.63	18 11 9.7	32.15
20	5 36 49.08	18 27 25.1	24.76	20	7 35 16.41	18 7 53.2	33.36
21	5 39 15.06	18 29 50.3	23.61	21	7 37 45.17	18 4 29.4	34.57
22	5 41 41.19	18 32 8.5	22.45	22	7 40 13.89	18 0 58.4	35.77
23	5 44 7.46	N.18 34 19.7	21.29	23	7 42 42.57	N.17 57 20.2	36.97
MONDAY 30.				WEDNESDAY, APRIL 1.			
0	5 46 33.87	N.18 36 24.0	20.13	0	7 45 11.21	N.17 53 34.8	38.16
1	5 49 0.41	18 38 21.3	18.96				
2	5 51 27.08	18 40 11.5	17.78				
3	5 53 53.88	18 41 54.7	16.60				
4	5 56 20.80	18 43 30.7	15.42				
5	5 58 47.84	18 44 59.7	14.23				
6	6 1 15.00	18 46 21.5	13.04				
7	6 3 42.27	18 47 36.2	11.84				
8	6 6 9.65	18 48 43.6	10.64				
9	6 8 37.13	18 49 43.9	9.45				
10	6 11 4.72	18 50 37.0	8.24				
11	6 13 32.41	18 51 22.8	7.03				
12	6 16 0.20	18 52 1.3	5.82				
13	6 18 28.07	18 52 32.6	4.61				
14	6 20 56.03	18 52 56.6	3.39				
15	6 23 24.08	18 53 13.3	2.17				
16	6 25 52.21	18 53 22.7	0.95				
17	6 28 20.41	18 53 24.7	0.27				
18	6 30 48.68	18 53 19.4	1.50				
19	6 33 17.02	18 53 6.7	2.73				
20	6 35 45.43	18 52 46.7	3.95				
21	6 38 13.90	18 52 19.3	5.18				
22	6 40 42.42	18 51 44.6	6.41				
23	6 43 11.00	18 51 2.4	7.65				
24	6 45 39.63	N.18 50 12.8	8.88				

PHASES OF THE MOON.

		h	m
Mar. 1	) First Quarter	- 16	48.7
8	○ Full Moon	- 8	22.2
15	(Last Quarter	- 15	28.5
23	● New Moon	- 18	59.0
31	) First Quarter	- 0	25.7

		h
Mar. 6	(Perigee - - - -	11
18	(Apogee - - - -	9

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
1	SUN W.	81 7 14	2802	82 41 39	2790	84 16 20	2776	85 51 19	2763
	Venus W.	44 28 26	2884	46 1 6	2870	47 34 3	2856	49 7 18	2842
	α Arietis W.	30 29 4	3054	31 58 10	2989	33 28 36	2931	35 0 15	2880
	Pollux E.	50 25 56	2594	48 46 53	2588	47 7 42	2584	45 28 25	2580
	Regulus E.	85 45 1	2472	84 3 8	2460	82 20 58	2448	80 38 31	2435
2	SUN W.	93 50 34	2698	95 27 17	2684	97 4 18	2671	98 41 37	2658
	Venus W.	56 58 1	2773	58 33 4	2760	60 8 24	2746	61 44 3	2733
	α Arietis W.	42 53 16	2683	44 30 19	2652	46 8 4	2623	47 46 28	2596
	Pollux E.	37 11 13	2581	35 31 52	2587	33 52 39	2566	32 13 38	2610
	Regulus E.	72 1 55	2374	70 17 43	2362	68 33 14	2350	66 48 27	2337
	Spica E.	125 29 26	2408	123 46 2	2394	122 2 19	2380	120 18 16	2368
3	SUN W.	106 52 35	2593	108 31 39	2581	110 11 0	2569	111 50 38	2556
	Venus W.	69 46 40	2666	71 24 5	2654	73 1 46	2642	74 39 44	2629
	α Arietis W.	56 7 2	2482	57 48 41	2462	59 30 47	2444	61 13 19	2426
	Aldebaran W.	22 8 46	2277	23 55 20	2266	25 42 10	2254	27 29 17	2243
	Pollux E.	24 5 35	2775	22 30 34	2844	20 57 3	2935	19 25 29	3056
	Regulus E.	58 0 9	2278	56 13 37	2266	54 26 48	2255	52 39 43	2244
	Spica E.	111 33 20	2304	109 47 26	2291	108 1 13	2279	106 14 43	2268
4	SUN W.	120 12 52	2500	121 54 6	2489	123 35 34	2479	125 17 17	2470
	Venus W.	82 53 41	2572	84 33 15	2561	86 13 3	2551	87 53 6	2541
	α Arietis W.	69 51 56	2349	71 36 44	2337	73 21 50	2324	75 7 14	2312
	Aldebaran W.	36 28 59	2190	38 17 42	2180	40 6 40	2170	41 55 52	2161
	Regulus E.	43 40 11	2192	41 51 31	2182	40 2 36	2172	38 13 26	2164
	Spica E.	97 18 1	2213	95 29 53	2203	93 41 30	2194	91 52 53	2188
5	Venus W.	96 16 32	2498	97 57 48	2492	99 39 13	2485	101 20 48	2479
	α Arietis W.	83 58 13	2265	85 45 4	2257	87 32 7	2250	89 19 20	2245
	Aldebaran W.	51 5 9	2121	52 55 36	2115	54 46 13	2109	56 36 59	2102
	Regulus E.	29 4 29	2125	27 14 8	2119	25 23 38	2113	23 32 58	2108
	Spica E.	82 46 32	2145	80 56 41	2138	79 6 40	2133	77 16 31	2127
	Saturn E.	126 32 46	2136	124 42 42	2130	122 52 28	2122	121 2 3	2116
6	Venus W.	109 50 30	2458	111 32 42	2456	113 14 57	2455	114 57 14	2454
	α Arietis W.	98 17 8	2228	100 4 54	2227	101 52 42	2227	103 40 29	2229
	Aldebaran W.	65 52 47	2082	67 44 14	2080	69 35 44	2078	71 27 17	2076
	Pollux W.	24 2 20	2516	25 43 11	2458	27 25 23	2412	29 8 41	2374
	Spica E.	68 3 59	2109	66 13 14	2107	64 22 26	2107	62 31 37	2107
	Saturn E.	111 47 56	2094	109 56 48	2092	108 5 36	2089	106 14 20	2088
	Antares E.	113 46 5	2158	111 56 34	2154	110 6 57	2150	108 17 14	2147
7	α Arietis W.	112 38 28	2249	114 25 42	2257	116 12 44	2266	117 59 33	2276
	Aldebaran W.	80 45 14	2080	82 36 44	2083	84 28 10	2086	86 19 31	2089
	Pollux W.	37 56 2	2264	39 42 54	2253	41 30 3	2244	43 17 25	2238
	Spica E.	53 17 50	2117	51 27 16	2122	49 36 50	2127	47 46 32	2133
	Saturn E.	96 57 50	2090	95 6 36	2093	93 15 26	2096	91 24 21	2099
	Antares E.	99 8 0	2145	97 18 10	2148	95 28 24	2150	93 38 41	2154
8	Aldebaran W.	95 34 30	2118	97 25 1	2126	99 15 20	2134	101 5 27	2143
	Pollux W.	52 15 50	2229	54 3 34	2232	55 51 13	2236	57 38 47	2241
	Regulus W.	15 28 19	2129	17 18 34	2134	19 8 41	2141	20 58 38	2149

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
1	SUN W.	87 26 35	2750	89 2 9	2737	90 38 0	2724	92 14 8	2711
	Venus W.	50 40 51	2828	52 14 42	2815	53 48 50	2801	55 23 17	2788
	α Arietis W.	36 33 0	2833	38 6 45	2790	39 41 26	2751	41 16 57	2716
	Pollux E.	43 49 2	2577	42 9 36	2576	40 30 8	2575	38 50 39	2577
	Regulus E.	78 55 46	2424	77 12 45	2411	75 29 26	2398	73 45 49	2387
2	SUN W.	100 19 14	2645	101 57 8	2632	103 35 20	2619	105 13 49	2607
	Venus W.	63 19 59	2720	64 56 13	2707	66 32 44	2693	68 9 33	2680
	α Arietis W.	49 25 28	2570	51 5 4	2546	52 45 13	2524	54 25 53	2503
	Pollux E.	30 34 56	2627	28 56 38	2650	27 18 51	2681	25 41 46	2722
	Regulus E.	65 3 22	2326	63 18 0	2313	61 32 20	2302	59 46 23	2290
	Spica E.	118 33 55	2354	116 49 14	2341	115 4 14	2328	113 18 56	2316
3	SUN W.	113 30 33	2545	115 10 44	2533	116 51 11	2522	118 31 54	2511
	Venus W.	76 17 59	2617	77 56 31	2605	79 35 19	2594	81 14 22	2583
	α Arietis W.	62 56 17	2410	64 39 38	2393	66 23 22	2378	68 7 29	2363
	Aldebaran W.	29 16 41	2231	31 4 22	2221	32 52 18	2210	34 40 31	2200
	Pollux E.	17 56 26	2320	16 30 41	2346	15 9 17	23763	13 53 36	2418
	Regulus E.	50 52 21	2233	49 4 42	2222	47 16 47	2212	45 28 37	2201
	Spica E.	104 27 56	2256	102 40 52	2245	100 53 31	2234	99 5 54	2223
4	SUN W.	126 59 12	2460	128 41 22	2451	130 23 44	2443	132 6 17	2435
	Venus W.	89 33 22	2531	91 13 52	2523	92 54 33	2514	94 35 27	2506
	α Arietis W.	76 52 56	2302	78 38 53	2291	80 25 6	2281	82 11 33	2272
	Aldebaran W.	43 45 18	2152	45 34 58	2144	47 24 50	2136	49 14 54	2129
	Regulus E.	36 24 4	2155	34 34 28	2147	32 44 40	2139	30 56 40	2132
	Spica E.	90 4 2	2176	88 14 58	2167	86 25 41	2159	84 36 12	2152
5	Venus W.	103 2 31	2473	104 44 22	2469	106 26 19	2465	108 8 22	2461
	α Arietis W.	91 6 41	2239	92 54 10	2235	94 41 45	2233	96 29 24	2229
	Aldebaran W.	58 27 55	2097	60 18 58	2093	62 10 8	2088	64 1 25	2085
	Regulus E.	21 42 11	2104	19 51 18	2100	18 0 19	2098	16 9 17	2097
	Spica E.	75 26 13	2122	73 35 48	2118	71 45 17	2115	69 54 40	2112
	Saturn E.	119 11 29	2111	117 20 47	2105	115 29 56	2101	113 38 59	2097
6	Venus W.	116 39 32	2454	118 21 50	2455	120 4 7	2456	121 46 22	2458
	α Arietis W.	105 28 14	2230	107 15 56	2233	109 3 34	2238	110 51 5	2243
	Aldebaran W.	73 18 53	2076	75 10 29	2076	77 2 5	2077	78 53 40	2078
	Pollux W.	30 52 53	2343	32 37 50	2317	34 23 25	2296	36 9 30	2278
	Spica E.	60 40 48	2107	58 49 59	2109	56 59 13	2110	55 8 29	2113
	Saturn E.	104 23 3	2087	102 31 44	2087	100 40 25	2087	98 49 6	2089
	Antares E.	106 27 27	2145	104 37 37	2144	102 47 45	2143	100 57 52	2144
7	α Arietis W.	119 46 7	2287	121 32 25	2301	123 18 23	2315	125 4 0	2331
	Aldebaran W.	88 10 47	2094	90 1 55	2099	91 52 56	2105	93 43 48	2111
	Pollux W.	45 4 56	2233	46 52 35	2229	48 40 19	2228	50 28 4	2228
	Spica E.	45 56 23	2140	44 6 25	2149	42 16 40	2158	40 27 9	2169
	Saturn E.	89 33 21	2104	87 42 28	2110	85 51 44	2115	84 1 8	2121
	Antares E.	91 49 4	2158	89 59 34	2163	88 10 11	2169	86 20 57	2176
8	Aldebaran W.	102 55 20	2153	104 44 59	2163	106 34 23	2173	108 23 31	2184
	Pollux W.	59 26 14	2247	61 13 32	2253	63 0 41	2261	64 47 37	2270
	Regulus W.	22 48 22	2157	24 37 54	2167	26 27 11	2177	28 16 13	2188

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
8	Spica E.	38 37 55	2181	36 48 58	2194	35 0 21	2208	33 12 6	2225
	Saturn E.	82 10 41	2129	80 20 26	2136	78 30 22	2145	76 40 31	2153
	Antares E.	84 31 53	2183	82 43 0	2192	80 54 20	2200	79 5 53	2210
9	Aldebaran W.	110 12 22	2196	112 0 55	2208	113 49 10	2221	115 37 6	2234
	Pollux W.	66 34 21	2279	68 20 51	2289	70 7 6	2300	71 53 6	2311
	Regulus W.	30 4 59	2199	31 53 28	2211	33 41 39	2224	35 29 31	2237
	Spica E.	24 18 8	2346	22 33 16	2383	20 49 17	2428	19 6 22	2482
	Saturn E.	67 34 56	2207	65 46 39	2219	63 58 40	2233	62 11 1	2246
	Antares E.	70 7 39	2270	68 20 55	2284	66 34 31	2299	64 48 30	2314
	α Aquilæ E.	116 15 6	2789	114 40 24	2784	113 5 35	2782	111 30 44	2781
10	Pollux W.	80 38 33	2379	82 22 38	2394	84 6 22	2409	85 49 44	2425
	Regulus W.	44 23 52	2309	46 9 39	2323	47 55 5	2339	49 40 7	2356
	Saturn E.	53 17 55	2320	51 32 24	2336	49 47 17	2353	48 2 34	2369
	Antares E.	56 4 20	2402	54 20 48	2422	52 37 45	2443	50 55 11	2465
	α Aquilæ E.	103 37 1	2804	102 2 39	2813	100 28 28	2824	98 54 32	2835
11	Pollux W.	94 20 46	2510	96 1 45	2527	97 42 20	2545	99 22 30	2564
	Regulus W.	58 19 21	2440	60 1 59	2457	61 44 13	2475	63 26 2	2493
	Saturn E.	39 25 8	2458	37 42 56	2477	36 1 11	2496	34 19 52	2516
	Antares E.	42 30 21	2587	40 51 8	2614	39 12 32	2644	37 34 37	2675
	α Aquilæ E.	91 9 0	2909	89 36 53	2928	88 5 9	2946	86 33 48	2965
12	Pollux W.	107 36 55	2658	109 14 31	2678	110 51 40	2697	112 28 24	2716
	Regulus W.	71 48 54	2581	73 28 15	2599	75 7 12	2616	76 45 45	2634
	Spica W.	19 1 55	2791	20 36 35	2777	22 11 33	2772	23 46 38	2770
	Saturn E.	26 0 16	2620	24 21 48	2643	22 43 51	2667	21 6 26	2692
	Antares E.	29 36 26	2870	28 3 29	2921	26 31 37	2978	25 0 57	3043
	α Aquilæ E.	79 3 26	3074	77 34 45	3097	76 6 32	3123	74 38 50	3148
	SUN E.	132 15 1	2920	130 43 8	2940	129 11 40	2958	127 40 35	2978
13	Regulus W.	84 52 36	2719	86 28 50	2736	88 4 42	2753	89 40 12	2768
	Spica W.	31 41 19	2800	33 15 47	2810	34 50 2	2820	36 24 4	2831
	α Aquilæ E.	67 28 19	3289	66 3 55	3319	64 40 6	3352	63 16 54	3386
	SUN E.	120 11 4	3070	118 42 18	3088	117 13 54	3105	115 45 51	3123
14	Regulus W.	97 32 38	2844	99 6 9	2859	100 39 21	2872	102 12 16	2885
	Spica W.	44 10 30	2890	45 43 2	2901	47 15 19	2913	48 47 22	2925
	α Aquilæ E.	56 30 47	3571	55 11 41	3613	53 53 21	3658	52 35 49	3704
	SUN E.	108 30 45	3205	107 4 42	3220	105 38 57	3235	104 13 29	3250
15	Regulus W.	109 52 44	2946	111 24 5	2957	112 55 11	2968	114 26 4	2977
	Spica W.	56 24 1	2978	57 54 42	2988	59 25 10	2998	60 55 26	3007
	Antares W.	13 58 13	4293	15 5 12	4061	16 15 52	3887	17 29 25	3753
	α Aquilæ E.	46 21 22	3983	45 9 26	4051	43 58 37	4125	42 48 59	4203
	SUN E.	97 10 20	3316	95 46 27	3328	94 22 48	3340	92 59 23	3351
16	Spica W.	68 24 5	3047	69 53 20	3053	71 22 27	3059	72 51 27	3065
	Saturn W.	24 32 1	3056	26 1 4	3060	27 30 2	3063	28 58 57	3067
	Antares W.	24 3 35	3414	25 25 36	3380	26 48 15	3352	28 11 27	3329
	SUN E.	86 5 11	3398	84 42 52	3406	83 20 42	3413	81 58 40	3420
	Spica W.	80 14 47	3088	81 43 11	3091	83 11 32	3094	84 39 49	3096

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^b .	P.L. of diff.	XVIII ^b .	P.L. of diff.	XXI ^b .	P.L. of diff.
8	Spica E.	31 24 16 ⁿ	2244	29 36 54 ⁿ	2264	27 50 2	2288	26 3 45 ⁿ	2315
	Saturn E.	74 50 53	2163	73 1 30	2173	71 12 22	2184	69 23 30	2196
	Antares E.	77 17 41	2221	75 29 45	2232	73 42 5	2244	71 54 42	2257
9	Aldebaran W.	117 24 43	2248	119 11 59	2262	120 58 55	2277	122 45 29	2292
	Pollux W.	73 38 49	2324	75 24 13	2336	77 9 20	2350	78 54 6	2364
	Regulus W.	37 17 4	2250	39 4 18	2264	40 51 10	2278	42 37 42	2293
	Spica E.	17 24 43	2550	15 44 40	2640	14 6 39	2760	12 31 19	2920
	Saturn E.	60 23 41	2260	58 36 42	2274	56 50 5	2289	55 3 49	2304
	Antares E.	63 2 51	2330	61 17 35	2347	59 32 44	2365	57 48 19	2383
	α Aquilæ E.	109 55 51	2782	108 21 0	2785	106 46 13	2791	105 11 33	2797
10	Pollux W.	87 32 43	2441	89 15 20	2458	90 57 32	2475	92 39 21	2492
	Regulus W.	51 24 45	2372	53 9 0	2389	54 52 51	2405	56 36 18	2422
	Saturn E.	46 18 14	2387	44 34 20	2403	42 50 50	2421	41 7 46	2440
	Antares E.	49 13 8	2487	47 31 36	2510	45 50 37	2534	44 10 11	2560
	α Aquilæ E.	97 20 50	2848	95 47 24	2863	94 14 17	2877	92 41 29	2892
11	Pollux W.	101 2 14	2582	102 41 33	2601	104 20 26	2620	105 58 54	2640
	Regulus W.	65 7 25	2510	66 48 25	2528	68 28 59	2546	70 9 9	2564
	Saturn E.	32 39 1	2535	30 58 37	2556	29 18 41	2577	27 39 14	2598
	Antares E.	35 57 23	2709	34 20 55	2744	32 45 13	2782	31 10 22	2824
	α Aquilæ E.	85 2 51	2985	83 32 20	3006	82 2 15	3028	80 32 37	3050
12	Pollux W.	114 4 42	2736	115 40 34	2756	117 15 59	2776	118 50 59	2795
	Regulus W.	78 23 53	2651	80 1 39	2669	81 39 0	2686	83 15 59	2702
	Spica W.	25 21 45	2772	26 56 50	2777	28 31 48	2783	30 6 39	2791
	Saturn E.	19 29 35	2720	17 53 21	2750	16 17 48	2784	14 42 59	2824
	Antares E.	23 31 38	3118	22 3 50	3206	20 37 48	3311	19 13 49	3438
	α Aquilæ E.	73 11 39	3174	71 44 59	3202	70 18 52	3231	68 53 19	3259
	SUN E.	126 9 55	2997	124 39 38	3015	123 9 44	3034	121 40 13	3052
13	Regulus W.	91 15 22	2784	92 50 11	2800	94 24 39	2815	95 58 48	2829
	Spica W.	37 57 51	2843	39 31 23	2854	41 4 41	2866	42 37 43	2878
	α Aquilæ E.	61 54 21	3419	60 32 26	3454	59 11 11	3492	57 50 38	3530
	SUN E.	114 18 10	3140	112 50 49	3157	111 23 48	3173	109 57 7	3189
14	Regulus W.	103 44 54	2898	105 17 15	2911	106 49 20	2923	108 21 10	2935
	Spica W.	50 19 9	2935	51 50 43	2946	53 22 3	2958	54 53 9	2969
	α Aquilæ E.	51 19 6	3754	50 3 16	3806	48 48 20	3861	47 34 21	3920
	SUN E.	102 48 19	3264	101 23 26	3278	99 58 49	3291	98 34 27	3304
15	Regulus W.	115 56 45	2987	117 27 14	2997	118 57 31	3005	120 27 38	3013
	Spica W.	62 25 30	3015	63 55 24	3024	65 25 7	3031	66 54 41	3039
	Antares W.	18 45 16	3650	20 2 56	3569	21 22 4	3506	22 42 21	3455
	α Aquilæ E.	41 40 36	4289	40 33 33	4382	39 27 55	4483	38 23 48	4593
	SUN E.	91 36 10	3360	90 13 8	3371	88 50 19	3380	87 27 40	3389
16	Spica W.	74 20 19	3070	75 49 5	3076	77 17 44	3080	78 46 18	3084
	Saturn W.	30 27 47	3071	31 56 32	3073	33 25 15	3076	34 53 54	3079
	Antares W.	29 35 5	3309	30 59 6	3293	32 23 26	3279	33 48 2	3266
	SUN E.	80 36 46	3426	79 14 59	3432	77 53 19	3438	76 31 45	3442
17	Spica W.	86 8 3	3098	87 36 15	3100	89 4 25	3101	90 32 34	3101

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
17	Saturn W.	36 22 29	3081	37 51 2	3084	39 19 31	3085	40 47 59	3087
	Antares W.	35 12 53	3255	36 37 57	3246	38 3 11	3237	39 28 36	3230
	Sun E.	75 10 16	3447	73 48 52	3451	72 27 33	3454	71 6 17	3456
18	Spica W.	92 0 42	3101	93 28 50	3101	94 56 58	3101	96 25 7	3100
	Saturn W.	48 10 1	3088	49 38 25	3087	51 6 50	3086	52 35 17	3085
	Antares W.	46 37 44	3199	48 3 55	3193	49 30 13	3187	50 56 38	3182
	Sun E.	64 20 32	3463	62 59 27	3463	61 38 21	3462	60 17 15	3461
19	Spica W.	103 46 17	3090	105 14 39	3086	106 43 6	3083	108 11 36	3079
	Saturn W.	59 58 9	3071	61 26 54	3068	62 55 43	3063	64 24 38	3058
	Antares W.	58 10 24	3153	59 37 29	3146	61 4 43	3140	62 32 4	3134
	Sun E.	53 31 16	3450	52 9 56	3446	50 48 31	3443	49 27 3	3438
20	Saturn W.	71 50 43	3031	73 20 17	3026	74 49 58	3019	76 19 47	3012
	Antares W.	69 50 47	3100	71 18 57	3092	72 47 16	3085	74 15 44	3077
	Sun E.	42 38 20	3412	41 16 17	3406	39 54 7	3400	38 31 50	3393
21	Saturn W.	83 51 6	2975	85 21 50	2966	86 52 45	2959	88 23 49	2950
	Antares W.	81 40 28	3037	83 9 55	3029	84 39 32	3020	86 9 20	3012
	Sun E.	31 38 30	3358	30 15 26	3351	28 52 13	3344	27 28 52	3337
26	Sun W.	26 40 40	2967	28 11 34	2956	29 42 42	2946	31 14 3	2935
	Aldebaran E.	35 21 47	2607	33 43 2	2600	32 4 7	2591	30 25 0	2583
	Pollux E.	79 34 1	2680	77 56 55	2672	76 19 38	2665	74 42 11	2658
	Regulus E.	115 29 53	2609	113 51 10	2601	112 12 16	2592	110 33 9	2584
27	Sun W.	38 54 2	2887	40 26 38	2877	41 59 27	2869	43 32 26	2859
	Pollux E.	66 32 40	2626	64 54 20	2621	63 15 53	2615	61 37 19	2610
	Regulus E.	102 14 49	2543	100 34 35	2535	98 54 11	2527	97 13 35	2520
28	Sun W.	51 20 13	2816	52 54 20	2808	54 28 37	2800	56 3 5	2792
	Pollux E.	53 22 56	2592	51 43 50	2590	50 4 41	2588	48 25 29	2587
	Regulus E.	88 47 57	2482	87 6 18	2474	85 24 28	2467	83 42 28	2459
29	Sun W.	63 58 2	2753	65 33 32	2744	67 9 13	2737	68 45 4	2729
	Venus W.	23 2 53	2984	24 33 26	2955	26 4 35	2931	27 36 15	2909
	Pollux E.	40 9 44	2599	38 30 48	2606	36 52 1	2615	35 13 26	2626
	Regulus E.	75 9 52	2424	73 26 51	2416	71 43 39	2409	70 0 17	2403
	Spica E.	128 36 53	2460	126 54 43	2450	125 12 20	2442	123 29 45	2434
30	Sun W.	76 46 49	2692	78 23 40	2685	80 0 40	2678	81 37 50	2671
	Venus W.	35 20 48	2825	36 54 44	2811	38 28 57	2799	40 3 26	2787
	Aldebaran W.	18 47 54	2368	20 32 15	2360	22 16 47	2354	24 1 28	2348
	Pollux E.	27 6 1	2746	25 30 22	2791	23 55 42	2847	22 22 15	2920
	Regulus E.	61 21 0	2368	59 36 39	2362	57 52 9	2355	56 7 29	2348
	Spica E.	114 53 58	2394	113 10 15	2387	111 26 22	2380	109 42 18	2373
31	Sun W.	89 46 1	2636	91 24 7	2630	93 2 21	2623	94 40 45	2617
	Venus W.	47 59 32	2735	49 35 25	2726	51 11 30	2718	52 47 46	2709
	Aldebaran W.	32 47 15	2315	34 32 52	2309	36 18 38	2302	38 4 34	2297
	Regulus E.	47 21 48	2317	45 36 13	2310	43 50 28	2304	42 4 35	2298
	Spica E.	100 59 28	2339	99 14 25	2333	97 29 13	2326	95 43 51	2320

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.		Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
17	Saturn	W.	42 16 25	3087	43 44 50	3088	45 13 14	3089	46 41 37	3088
	Antares	W.	40 54 10	3223	42 19 52	3216	43 45 42	3210	45 11 39	3204
	SUN	E.	69 45 4	3459	68 23 54	3460	67 2 45	3462	65 41 38	3463
18	Spica	W.	97 53 17	3099	99 21 28	3096	100 49 42	3095	102 17 58	3092
	Saturn	W.	54 3 45	3083	55 32 16	3080	57 0 50	3077	58 29 28	3074
	Antares	W.	52 23 9	3175	53 49 48	3170	55 16 33	3164	56 43 25	3158
	SUN	E.	58 56 7	3460	57 34 58	3458	56 13 47	3455	54 52 33	3453
19	Spica	W.	109 40 11	3075	111 8 51	3071	112 37 36	3066	114 6 27	3061
	Saturn	W.	65 53 39	3054	67 22 45	3048	68 51 58	3043	70 21 17	3038
	Antares	W.	63 59 32	3127	65 27 9	3121	66 54 53	3114	68 22 46	3107
	SUN	E.	48 5 29	3433	46 43 50	3429	45 22 6	3423	44 0 16	3418
20	Saturn	W.	77 49 45	3005	79 19 51	2997	80 50 7	2990	82 20 32	2983
	Antares	W.	75 44 22	3069	77 13 9	3062	78 42 5	3053	80 11 12	3046
	SUN	E.	37 9 26	3386	35 46 54	3379	34 24 14	3372	33 1 26	3365
21	Saturn	W.	89 55 4	2942	91 26 30	2933	92 58 7	2924	94 29 55	2916
	Antares	W.	87 39 18	3003	89 9 27	2995	90 39 46	2985	92 10 17	2977
	SUN	E.	26 5 23	3330	24 41 46	3323	23 18 1	3316	21 54 8	3311
26	SUN	W.	32 45 38	2924	34 17 26	2915	35 49 26	2905	37 21 38	2896
	Aldebaran	E.	28 45 41	2575	27 6 12	2566	25 26 30	2558	23 46 38	2551
	Pollux	E.	73 4 35	2652	71 26 50	2644	69 48 55	2638	68 10 52	2632
	Regulus	E.	108 53 52	2575	107 14 23	2567	105 34 43	2559	103 54 51	2551
27	SUN	W.	45 5 37	2851	46 38 59	2842	48 12 33	2833	49 46 18	2825
	Pollux	E.	59 58 38	2605	58 19 50	2601	56 40 57	2598	55 1 59	2594
	Regulus	E.	95 32 49	2512	93 51 52	2504	92 10 44	2497	90 29 26	2489
28	SUN	W.	57 37 43	2784	59 12 32	2776	60 47 32	2768	62 22 42	2760
	Pollux	E.	46 46 17	2587	45 7 5	2588	43 27 54	2591	41 48 47	2594
	Regulus	E.	82 0 17	2452	80 17 56	2445	78 35 25	2438	76 52 41	2430
29	SUN	W.	70 21 5	2722	71 57 16	2714	73 33 37	2707	75 10 8	2699
	Venus	W.	29 8 23	2889	30 40 56	2870	32 13 53	2854	33 47 11	2839
	Pollux	E.	33 35 7	2641	31 57 7	2639	30 19 32	2631	28 42 27	2610
	Regulus	E.	68 16 46	2395	66 33 4	2389	64 49 13	2381	63 5 11	2375
	Spica	E.	121 46 58	2426	120 4 0	2417	118 20 50	2410	116 37 29	2403
30	SUN	W.	83 15 9	2663	84 52 38	2656	86 30 17	2650	88 8 4	2643
	Venus	W.	41 38 11	2776	43 13 11	2765	44 48 24	2754	46 23 52	2745
	Aldebaran	W.	25 46 18	2341	27 31 18	2334	29 16 28	2328	31 1 47	2322
	Pollux	E.	20 50 21	3014	19 20 26	3136	17 53 0	3299	16 28 47	3519
	Regulus	E.	54 22 39	2342	52 37 41	2335	50 52 32	2329	49 7 15	2322
	Spica	E.	107 58 4	2366	106 13 40	2359	104 29 6	2352	102 44 22	2345
31	SUN	W.	96 19 17	2611	97 57 57	2604	99 36 46	2599	101 15 42	2593
	Venus	W.	54 24 14	2701	56 0 53	2693	57 37 42	2686	59 14 41	2678
	Aldebaran	W.	39 50 38	2291	41 36 50	2285	43 23 11	2280	45 9 40	2275
	Regulus	E.	40 18 33	2293	38 32 23	2287	36 46 5	2282	34 59 39	2277
	Spica	E.	93 58 21	2314	92 12 42	2308	90 26 54	2303	88 40 59	2297

Day of the Month.	AIRY'S Day Numbers— For correcting the Places of the Fixed Stars.					Mean Time of Transit of the First Point of Aries.
	At Mean Midnight,					
	Logarithms of				Value of L	
	E	F	G	H		
1	0.85666	1.49703	0.09101	1.51804	93.300	^{h m s} 1 21 30.32
2	0.85056	1.49231	0.09162	1.51784	93.804	1 17 34.41
3	0.84473	1.48750	0.09222	1.51765	94.302	1 13 38.51
4	0.83919	1.48261	0.09282	1.51747	94.794	1 9 42.60
5	0.83391	1.47766	0.09341	1.51729	95.283	1 5 46.70
6	0.82892	1.47262	0.09399	1.51712	95.766	1 1 50.79
7	0.82427	1.46749	0.09457	1.51697	96.242	0 57 54.89
8	0.81992	1.46230	0.09515	1.51682	96.714	0 53 58.98
9	0.81589	1.45703	0.09572	1.51668	97.179	0 50 3.07
10	0.81220	1.45167	0.09628	1.51655	97.636	0 46 7.17
11	0.80885	1.44625	0.09684	1.51642	98.089	0 42 11.26
12	0.80586	1.44074	0.09740	1.51630	98.535	0 38 15.36
13	0.80324	1.43515	0.09795	1.51619	98.975	0 34 19.45
14	0.80098	1.42949	0.09850	1.51608	99.409	0 30 23.54
15	0.79911	1.42373	0.09905	1.51598	99.835	0 26 27.64
16	0.79763	1.41788	0.09960	1.51590	100.254	0 22 31.73
17	0.79653	1.41197	0.10014	1.51582	100.667	0 18 35.83
18	0.79583	1.40597	0.10068	1.51575	101.071	0 14 39.92
19	0.79552	1.39988	0.10123	1.51570	101.466	0 10 44.02
20	0.79558	1.39373	0.10177	1.51565	101.856	0 6 48.11
21	0.79605	1.38748	0.10231	1.51561	102.237	{ ₄₃ { ₅ { _{58.20} }
22	0.79691	1.38113	0.10285	1.51558	102.608	23 55 0.39
23	0.79814	1.37472	0.10339	1.51556	102.974	23 51 4.48
24	0.79975	1.36821	0.10393	1.51555	103.330	23 47 8.57
25	0.80174	1.36160	0.10448	1.51554	103.677	23 43 12.67
26	0.80410	1.35493	0.10503	1.51554	104.018	23 39 16.76
27	0.80683	1.34816	0.10558	1.51555	104.349	23 35 20.85
28	0.80991	1.34130	0.10613	1.51557	104.669	23 31 24.95
29	0.81334	1.33437	0.10668	1.51559	104.983	23 27 29.04
30	0.81710	1.32734	0.10723	1.51562	105.287	23 23 33.14
31	0.82119	1.32022	0.10779	1.51567	105.581	23 19 37.23
32	0.82557	1.31303	0.10835	1.51572	105.868	23 15 41.32

Day of the Month.	BESSEL's Day Numbers— For correcting the Places of the Fixed Stars.				Days elapsed of the Julian Period at Mean Noon.	Mean Equinoctial Time, of 1857, adding of 20081.	From Mean Noon of January 1.	
	At Mean Midnight,						Day of the Year.	Fraction of the Year.*
	Logarithms of							
	A	B	C	D		Days.		
1	-1.2507	+0.8067	+8.5205	+0.9011	2403393	344	60	.1643
2	1.2531	0.7830	8.5426	0.9003	2403394	345	61	.1670
3	1.2554	0.7578	8.5634	0.8995	2403395	346	62	.1698
4	-1.2575	+0.7309	+8.5831	+0.8988	2403396	347	63	.1725
5	1.2595	0.7021	8.6017	0.8981	2403397	348	64	.1752
6	1.2614	0.6712	8.6195	0.8974	2403398	349	65	.1780
7	-1.2631	+0.6377	+8.6365	+0.8967	2403399	350	66	.1807
8	1.2647	0.6013	8.6526	0.8961	2403400	351	67	.1834
9	1.2661	0.5615	8.6681	0.8955	2403401	352	68	.1862
10	-1.2674	+0.5176	+8.6830	+0.8949	2403402	353	69	.1889
11	1.2686	0.4685	8.6973	0.8944	2403403	354	70	.1917
12	1.2696	0.4131	8.7111	0.8939	2403404	355	71	.1944
13	-1.2705	+0.3495	+8.7244	+0.8934	2403405	356	72	.1971
14	1.2713	0.2748	8.7373	0.8930	2403406	357	73	.1999
15	1.2719	0.1844	8.7497	0.8926	2403407	358	74	.2026
16	-1.2724	+0.0700	+8.7617	+0.8922	2403408	359	75	.2053
17	1.2728	9.9141	8.7734	0.8919	2403409	360	76	.2081
18	1.2730	9.6686	8.7847	0.8916	2403410	361	77	.2108
19	-1.2731	+9.0489	+8.7957	+0.8914	2403411	362	78	.2136
20	1.2731	-9.3843	8.8065	0.8912	2403412	363	79	.2163
21	1.2730	9.7753	8.8170	0.8910	2403413	364	80	.2190
22	-1.2727	-9.9775	+8.8274	+0.8909	2403414	0	81	.2218
23	1.2723	0.1148	8.8375	0.8908	2403415	1	82	.2245
24	1.2717	0.2188	8.8474	0.8907	2403416	2	83	.2272
25	-1.2710	-0.3025	+8.8572	+0.8907	2403417	3	84	.2300
26	1.2702	0.3725	8.8667	0.8907	2403418	4	85	.2327
27	1.2693	0.4326	8.8761	0.8907	2403419	5	86	.2355
28	-1.2682	-0.4853	+8.8854	+0.8908	2403420	6	87	.2382
29	1.2670	0.5321	8.8945	0.8909	2403421	7	88	.2409
30	1.2657	0.5742	8.9034	0.8910	2403422	8	89	.2437
31	1.2642	0.6124	8.9123	0.8912	2403423	9	90	.2464
32	-1.2626	-0.6474	+8.9210	+0.8914	2403424	10	91	.2492

* Add .0012 if Fraction be required for the time 4, see page 329.

* Add .0012 if Fraction be required for the time 4, see page 329.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiameter passing the Meridian.*	Equation of Time, to be added to sub. from Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
Wed.	1	^h 0 ^m 44 ^s 18.65	9.100	N. 4 45 54.7	57.72	^m 4 50	^m 3 48.63	0.755
Thur.	2	0 47 57.09	9.104	5 8 57.3	57.49	4 52	3 30.56	0.750
Frid.	3	0 51 35.64	9.109	5 31 54.3	57.25	4 54	3 12.61	0.745
Sat.	4	0 55 14.33	9.115	5 54 45.4	57.00	4 57	2 54.79	0.739
Sun.	5	0 58 53.18	9.122	6 17 30.3	56.74	4 60	2 37.14	0.732
Mon.	6	1 2 32.21	9.131	6 40 8.7	56.46	4 63	2 19.67	0.723
Tues.	7	1 6 11.45	9.140	7 2 40.2	56.16	4 66	2 2.42	0.714
Wed.	8	1 9 50.93	9.150	7 25 4.5	55.86	4 69	1 45.39	0.704
Thur.	9	1 13 30.67	9.161	7 47 21.3	55.54	4 73	1 28.61	0.693
Frid.	10	1 17 10.68	9.173	8 9 30.4	55.21	4 77	1 12.12	0.681
Sat.	11	1 20 50.99	9.186	8 31 31.3	54.86	4 81	0 55.92	0.669
Sun.	12	1 24 31.61	9.200	8 53 23.8	54.50	4 86	0 40.03	0.655
Mon.	13	1 28 12.56	9.214	9 15 7.5	54.13	4 91	0 24.47	0.641
Tues.	14	1 31 53.85	9.228	9 36 42.2	53.75	4 96	0 9.26	0.626
Wed.	15	1 35 35.51	9.244	9 58 7.3	53.34	5 01	0 5.60	0.611
Thur.	16	1 39 17.55	9.260	10 19 22.7	52.92	5 06	0 20.08	0.595
Frid.	17	1 42 59.98	9.276	10 40 28.0	52.50	5 12	0 34.16	0.578
Sat.	18	1 46 42.81	9.293	11 1 22.8	52.06	5 18	0 47.84	0.561
Sun.	19	1 50 26.06	9.311	11 22 6.7	51.60	5 24	1 1.11	0.544
Mon.	20	1 54 9.74	9.329	11 42 39.6	51.13	5 30	1 13.95	0.527
Tues.	21	1 57 53.86	9.348	12 3 1.0	50.65	5 36	1 26.35	0.508
Wed.	22	2 1 38.43	9.367	12 23 10.6	50.15	5 42	1 38.31	0.489
Thur.	23	2 5 23.46	9.386	12 43 8.0	49.63	5 49	1 49.80	0.469
Frid.	24	2 9 8.96	9.406	13 2 53.0	49.10	5 56	2 0.82	0.449
Sat.	25	2 12 54.94	9.426	13 22 25.1	48.56	5 63	2 11.36	0.429
Sun.	26	2 16 41.40	9.446	13 41 44.0	48.01	5 70	2 21.43	0.409
Mon.	27	2 20 28.34	9.466	14 0 49.5	47.44	5 78	2 31.01	0.389
Tues.	28	2 24 15.77	9.487	14 19 41.1	46.85	5 85	2 40.11	0.369
Wed.	29	2 28 3.70	9.508	14 38 18.4	46.25	5 93	2 48.71	0.348
Thur.	30	2 31 52.14	9.529	14 56 41.2	45.64	6 01	2 56.80	0.326
Frid.	31	2 35 41.09	9.550	N. 15 14 49.2	45.02	6 09	3 4.38	0.305

* Mean Time of the Semidiameter passing may be found by subtracting 0^h 18 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be subt. from added to Mean Time.	Sidereal Time.
		Apparent Right Ascension.	Apparent Declination.	Semidiameter.*		
		^h ^m ^s	[°] ['] ["]	['] ["]	^m ^s	^h ^m ^s
Wed.	1	0 44 18.07	N. 4 45 51.1	16 1.8	3 48.68	0 40 29.39
Thur.	2	0 47 56.55	5 8 53.9	16 1.5	3 30.60	0 44 25.95
Frid.	3	0 51 35.15	5 31 51.2	16 1.2	3 12.65	0 48 22.50
Sat.	4	0 55 13.88	5 54 42.7	16 0.9	2 54.83	0 52 19.05
Sun.	5	0 58 52.78	6 17 27.9	16 0.7	2 37.17	0 56 15.61
Mon.	6	1 2 31.86	6 40 6.5	16 0.4	2 19.70	1 0 12.16
Tues.	7	1 6 11.15	7 2 38.2	16 0.1	2 2.44	1 4 8.71
Wed.	8	1 9 50.67	7 25 2.8	15 59.8	1 45.41	1 8 5.26
Thur.	9	1 13 30.45	7 47 20.0	15 59.6	1 28.63	1 12 1.82
Frid.	10	1 17 10.50	8 9 29.3	15 59.3	1 12.13	1 15 58.37
Sat.	11	1 20 50.85	8 31 30.5	15 59.0	0 55.93	1 19 54.92
Sun.	12	1 24 31.51	8 53 23.2	15 58.7	0 40.04	1 23 51.47
Mon.	13	1 28 12.50	9 15 7.2	15 58.5	0 24.48	1 27 48.02
Tues.	14	1 31 53.83	9 36 42.0	15 58.2	0 9.26	1 31 44.57
Wed.	15	1 35 35.53	9 58 7.4	15 57.9	0 5.60	1 35 41.13
Thur.	16	1 39 17.60	10 19 23.0	15 57.6	0 20.08	1 39 37.68
Frid.	17	1 43 0.07	10 40 28.5	15 57.4	0 34.17	1 43 34.24
Sat.	18	1 46 42.94	11 1 23.5	15 57.1	0 47.85	1 47 30.79
Sun.	19	1 50 26.22	11 22 7.6	15 56.8	1 1.12	1 51 27.34
Mon.	20	1 54 9.93	11 42 40.6	15 56.6	1 13.96	1 55 23.89
Tues.	21	1 57 54.08	12 3 2.2	15 56.3	1 26.36	1 59 20.44
Wed.	22	2 1 38.68	12 23 12.0	15 56.1	1 38.32	2 3 17.00
Thur.	23	2 5 23.74	12 43 9.6	15 55.8	1 49.82	2 7 13.56
Frid.	24	2 9 9.27	13 2 54.7	15 55.6	2 0.84	2 11 10.11
Sat.	25	2 12 55.28	13 22 26.9	15 55.3	2 11.38	2 15 6.66
Sun.	26	2 16 41.77	13 41 45.9	15 55.1	2 21.45	2 19 3.22
Mon.	27	2 20 28.74	14 0 51.4	15 54.8	2 31.03	2 22 59.77
Tues.	28	2 24 16.20	14 19 43.1	15 54.6	2 40.13	2 26 56.33
Wed.	29	2 28 4.15	14 38 20.6	15 54.4	2 48.73	2 30 52.88
Thur.	30	2 31 52.61	14 56 43.5	15 54.1	2 56.82	2 34 49.43
Frid.	31	2 35 41.58	N. 15 14 51.5	15 53.9	3 4.40	2 38 45.98

* The Semidiameter for *Apparent Noon* may be assumed the same as that for *Mean Noon*.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	12 2 41.1	S. 0.35	0.0000334	16 12.6	16 14.6	59 23.4	59 30.7
2	13 1 46.8	0.22	0.0001558	16 16.2	16 17.3	59 36.4	59 40.4
3	14 0 50.2	S. 0.09	0.0002784	16 17.7	16 17.6	59 42.2	59 41.8
4	14 59 51.2	N. 0.05	0.0004013	16 16.9	16 15.4	59 39.0	59 33.6
5	15 58 50.0	0.19	0.0005245	16 13.2	16 10.3	59 25.6	59 14.9
6	16 57 46.6	0.31	0.0006482	16 6.7	16 2.5	59 1.7	58 46.2
7	17 56 41.1	0.43	0.0007723	15 57.7	15 52.4	58 28.7	58 9.4
8	18 55 33.6	0.52	0.0008966	15 46.8	15 40.9	57 48.8	57 27.1
9	19 54 24.2	0.57	0.0010213	15 34.9	15 28.8	57 5.1	56 43.0
10	20 53 13.1	0.61	0.0011461	15 22.9	15 17.1	56 21.2	56 0.2
11	21 52 0.1	0.60	0.0012710	15 11.8	15 6.8	55 40.4	55 22.1
12	22 50 45.4	0.57	0.0013958	15 2.2	14 58.3	55 5.5	54 51.0
13	23 49 28.9	0.53	0.0015203	14 54.9	14 52.2	54 38.7	54 28.8
14	24 48 10.8	0.46	0.0016445	14 50.2	14 48.9	54 21.5	54 16.6
15	25 46 50.9	0.36	0.0017682	14 48.3	14 48.4	54 14.5	54 14.9
16	26 45 29.2	0.26	0.0018912	14 49.2	14 50.7	54 17.8	54 23.3
17	27 44 5.9	0.16	0.0020134	14 52.8	14 55.6	54 31.1	54 41.1
18	28 42 40.9	N. 0.04	0.0021348	14 58.9	15 2.7	54 53.2	55 7.1
19	29 41 14.1	S. 0.08	0.0022552	15 6.9	15 11.4	55 22.5	55 39.2
20	30 39 45.5	0.18	0.0023744	15 16.3	15 21.2	55 56.9	56 15.2
21	31 38 15.2	0.28	0.0024923	15 26.3	15 31.5	56 33.9	56 52.7
22	32 36 43.1	0.36	0.0026088	15 36.5	15 41.4	57 11.1	57 28.9
23	33 35 9.2	0.42	0.0027239	15 46.0	15 50.3	57 45.8	58 1.7
24	34 33 33.5	0.45	0.0028376	15 54.3	15 57.8	58 16.2	58 29.2
25	35 31 55.8	0.45	0.0029498	16 1.0	16 3.6	58 40.7	58 50.5
26	36 30 16.2	0.43	0.0030605	16 5.9	16 7.7	58 58.7	59 5.3
27	37 28 34.5	0.36	0.0031698	16 9.1	16 10.0	59 10.4	59 14.0
28	38 26 50.8	0.27	0.0032778	16 10.6	16 10.9	59 16.2	59 17.1
29	39 25 5.0	S. 0.14	0.0033847	16 10.8	16 10.4	59 16.8	59 15.2
30	40 23 17.0	0.00	0.0034904	16 9.6	16 8.5	59 12.4	59 8.5
31	41 21 26.9	N. 0.13	0.0035952	16 7.2	16 5.4	59 3.4	58 57.1

MEAN TIME.

Day of the Week.	Day of the Month.	THE MOON'S							
		Longitude.		Latitude.		Age.	Meridian Passage.		
		Noon.	Midnight.	Noon.	Midnight.				
		° ' "	° ' "	° ' "	° ' "	d	h m		
Wed.	1	114 58 46.5	122 5 58.3	S. 3 18 30.4	S. 2 47 7.2	8.2	7	21.7	
Thur.	2	129 14 34.7	136 24 18.8	2 13 1.7	1 36 46.1	9.2	8	18.7	
Frid.	3	143 34 49.9	150 45 44.7	S. 0 58 55.9	S. 0 20 8.9	10.2	9	14.4	
Sat.	4	157 56 35.6	165 6 52.1	N. 0 18 55.1	N. 0 57 35.7	11.2	10	8.4	
Sun.	5	172 16 0.8	179 23 26.6	1 35 13.4	2 11 9.9	12.2	11	1.0	
Mon.	6	186 28 33.2	193 30 44.6	2 44 50.1	3 15 42.8	13.2	11	52.4	
Tues.	7	200 29 26.9	207 24 8.5	3 43 21.6	4 7 24.9	14.2	12	43.0	
Wed.	8	214 14 22.6	220 59 47.0	4 27 37.4	4 43 48.5	15.2	13	33.3	
Thur.	9	227 40 6.0	234 15 10.1	4 55 53.1	5 3 50.8	16.2	14	23.5	
Frid.	10	240 44 56.4	247 9 29.0	5 7 45.2	5 7 43.0	17.2	15	13.4	
Sat.	11	253 28 58.0	259 43 39.8	5 3 53.7	4 56 28.6	18.2	16	3.1	
Sun.	12	265 53 56.0	272 0 12.7	4 45 40.5	4 31 43.0	19.2	16	52.2	
Mon.	13	278 3 0.4	284 2 52.2	4 14 50.1	3 55 16.1	20.2	17	40.5	
Tues.	14	290 0 24.5	295 56 15.0	3 33 15.5	3 9 2.8	21.2	18	27.8	
Wed.	15	301 51 2.8	307 45 27.7	2 42 52.4	2 14 59.2	22.2	19	14.0	
Thur.	16	313 40 9.6	319 35 47.7	1 45 38.2	1 15 4.8	23.2	19	59.4	
Frid.	17	325 33 0.3	331 32 23.8	N. 0 43 35.2	N. 0 11 27.0	24.2	20	44.2	
Sat.	18	337 34 32.5	343 39 57.8	S. 0 21 1.9	S. 0 53 31.8	25.2	21	28.8	
Sun.	19	349 49 7.5	356 2 25.4	1 25 42.0	1 57 10.1	26.2	22	13.8	
Mon.	20	2 20 10.4	8 42 36.4	2 27 32.2	2 56 24.1	27.2	22	59.9	
Tues.	21	15 9 51.4	21 41 57.5	3 23 19.9	3 47 54.4	28.2	23	47.5	
Wed.	22	28 18 50.8	35 0 21.0	4 9 41.5	4 28 17.0	29.2	6		
Thur.	23	41 46 12.8	48 36 4.9	4 43 18.4	4 54 25.5	0.7	0	37.3	
Frid.	24	55 29 32.5	62 26 7.6	5 1 22.3	5 3 55.8	1.7	1	29.6	
Sat.	25	69 25 19.8	76 26 38.4	5 1 58.7	4 55 28.3	2.7	2	24.4	
Sun.	26	83 29 33.4	90 33 36.7	4 44 27.3	4 29 3.7	3.7	3	21.3	
Mon.	27	97 38 22.5	104 43 28.0	4 9 30.9	3 46 6.4	4.7	4	19.3	
Tues.	28	111 48 34.4	118 53 26.4	3 19 12.4	2 49 14.8	5.7	5	17.3	
Wed.	29	125 57 51.5	133 1 40.4	2 16 42.4	1 42 6.5	6.7	6	14.2	
Thur.	30	140 4 45.3	147 6 59.5	S. 1 6 0.5	S. 0 28 58.8	7.7	7	9.3	
Frid.	31	154 8 16.7	161 8 29.7	N. 0 8 23.4	N. 0 45 30.9	8.7	8	2.5	

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 1.				FRIDAY 3.			
0	7 45 11.21	N. 17 53 34.8	38.16	0	9 42 18.41	N. 12 44 26.4	87.62
1	7 47 39.80	17 49 42.3	39.34	1	9 44 41.69	12 35 38.2	88.43
2	7 50 8.34	17 45 48.7	40.53	2	9 47 4.81	12 26 45.2	89.23
3	7 52 36.83	17 41 36.0	41.71	3	9 49 27.78	12 17 47.5	90.01
4	7 55 5.27	17 37 22.2	42.88	4	9 51 50.60	12 8 45.1	90.79
5	7 57 33.64	17 33 1.4	44.05	5	9 54 13.27	11 59 38.0	91.56
6	8 0 1.95	17 28 33.6	45.22	6	9 56 35.79	11 50 26.4	92.31
7	8 2 30.19	17 23 58.8	46.38	7	9 58 58.15	11 41 10.3	93.05
8	8 4 58.37	17 19 17.0	47.53	8	10 1 20.36	11 31 49.8	93.78
9	8 7 26.47	17 14 28.4	48.68	9	10 3 42.42	11 22 24.9	94.50
10	8 9 54.49	17 9 32.9	49.83	10	10 6 4.33	11 12 55.8	95.21
11	8 12 22.44	17 4 30.5	50.98	11	10 8 26.08	11 3 22.4	95.91
12	8 14 50.30	16 59 21.2	52.11	12	10 10 47.67	10 53 44.9	96.59
13	8 17 18.08	16 54 5.2	53.23	13	10 13 9.11	10 44 3.4	97.26
14	8 19 45.77	16 48 42.5	54.34	14	10 15 30.40	10 34 17.8	97.92
15	8 22 13.37	16 43 13.1	55.46	15	10 17 51.54	10 24 28.3	98.57
16	8 24 40.88	16 37 37.0	56.56	16	10 20 12.52	10 14 35.0	99.20
17	8 27 8.29	16 31 54.4	57.66	17	10 22 33.35	10 4 37.9	99.83
18	8 29 35.61	16 26 5.1	58.76	18	10 24 54.03	9 54 37.1	100.44
19	8 32 2.82	16 20 9.3	59.84	19	10 27 14.56	9 44 32.6	101.04
20	8 34 29.93	16 14 7.0	60.92	20	10 29 34.93	9 34 24.6	101.63
21	8 36 56.93	16 7 58.2	62.00	21	10 31 55.15	9 24 13.1	102.20
22	8 39 23.82	16 1 43.0	63.06	22	10 34 15.22	9 13 58.2	102.77
23	8 41 50.60	N. 15 55 21.5	64.12	23	10 36 35.15	N. 9 3 39.9	103.32
THURSDAY 2.				SATURDAY 4.			
0	8 44 17.27	N. 15 48 53.6	65.17	0	10 38 54.92	N. 8 53 18.4	103.85
1	8 46 43.82	15 44 19.5	66.21	1	10 41 14.54	8 42 53.7	104.38
2	8 49 10.26	15 39 39.1	67.24	2	10 43 34.01	8 32 25.9	104.89
3	8 51 36.58	15 28 52.6	68.26	3	10 45 53.34	8 21 55.0	105.40
4	8 54 2.77	15 22 0.0	69.28	4	10 48 12.52	8 11 21.1	105.88
5	8 56 28.84	15 15 1.3	70.29	5	10 50 31.55	8 0 44.4	106.35
6	8 58 54.78	15 7 56.5	71.29	6	10 52 50.44	7 50 4.9	106.81
7	9 1 20.60	15 0 45.8	72.28	7	10 55 9.18	7 39 22.6	107.27
8	9 3 46.28	14 53 29.2	73.25	8	10 57 27.78	7 28 37.7	107.70
9	9 6 11.84	14 46 6.8	74.22	9	10 59 46.23	7 17 50.2	108.12
10	9 8 37.26	14 38 38.5	75.19	10	11 2 4.54	7 7 0.2	108.53
11	9 11 2.55	14 31 4.5	76.14	11	11 4 22.72	6 56 7.8	108.93
12	9 13 27.69	14 23 24.8	77.08	12	11 6 40.75	6 45 13.0	109.32
13	9 15 52.70	14 15 39.5	78.02	13	11 8 58.64	6 34 16.0	109.69
14	9 18 17.58	14 7 48.6	78.94	14	11 11 16.40	6 23 16.7	110.06
15	9 20 42.31	13 59 52.2	79.86	15	11 13 34.02	6 12 15.3	110.40
16	9 23 6.90	13 51 50.3	80.76	16	11 15 51.50	6 1 11.9	110.73
17	9 25 31.35	13 43 43.1	81.65	17	11 18 8.85	5 50 6.6	111.05
18	9 27 55.65	13 35 30.5	82.54	18	11 20 26.06	5 38 59.3	111.37
19	9 30 19.81	13 27 12.6	83.42	19	11 22 43.15	5 27 50.2	111.66
20	9 32 43.83	13 18 49.5	84.28	20	11 25 0.11	5 16 39.4	111.94
21	9 35 7.70	13 10 21.3	85.13	21	11 27 16.93	5 5 26.9	112.21
22	9 37 31.42	13 1 48.0	85.97	22	11 29 33.63	4 54 12.8	112.48
23	9 39 54.99	12 53 9.7	86.80	23	11 31 50.20	4 42 57.2	112.72
24	9 42 18.41	N. 12 44 26.4	87.62	24	11 34 6.65	N. 4 31 40.2	112.95

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SUNDAY 5.				TUESDAY 7.			
0	^h 11 ^m 34 ^s 6.65	N. 4 31 40.2	112.95	0	^h 13 ^m 21 ^s 18.78	S. 4 33 29.5	109.60
1	11 36 22.97	4 20 21.8	113.17	1	13 23 30.97	4 44 26.1	109.26
2	11 38 39.17	4 9 2.2	113.38	2	13 25 43.12	4 55 20.6	108.90
3	11 40 55.25	3 57 41.3	113.58	3	13 27 55.22	5 6 12.9	108.53
4	11 43 11.21	3 46 19.3	113.75	4	13 30 7.27	5 17 2.9	108.14
5	11 45 27.05	3 34 56.3	113.91	5	13 32 19.28	5 27 50.6	107.75
6	11 47 42.78	3 23 32.4	114.07	6	13 34 31.24	5 38 35.9	107.35
7	11 49 58.39	3 12 7.5	114.23	7	13 36 43.16	5 49 18.8	106.93
8	11 52 13.89	3 0 41.8	114.35	8	13 38 55.04	5 59 59.1	106.51
9	11 54 29.27	2 49 15.3	114.47	9	13 41 6.88	6 10 36.9	106.08
10	11 56 44.55	2 37 48.2	114.57	10	13 43 18.68	6 21 12.1	105.64
11	11 58 59.72	2 26 20.5	114.66	11	13 45 30.44	6 31 44.6	105.19
12	12 1 14.78	2 14 52.3	114.73	12	13 47 42.17	6 42 14.4	104.73
13	12 3 29.73	2 3 23.7	114.80	13	13 49 53.86	6 52 41.4	104.26
14	12 5 44.58	1 51 54.7	114.86	14	13 52 5.52	7 3 5.5	103.78
15	12 7 59.33	1 40 25.4	114.90	15	13 54 17.15	7 13 26.7	103.29
16	12 10 13.98	1 28 55.9	114.93	16	13 56 28.75	7 23 45.0	102.79
17	12 12 28.52	1 17 26.2	114.95	17	13 58 40.31	7 34 0.2	102.28
18	12 14 42.97	1 5 56.5	114.95	18	14 0 51.85	7 44 12.4	101.77
19	12 16 57.33	0 54 26.8	114.94	19	14 3 3.35	7 54 21.5	101.24
20	12 19 11.59	0 42 57.2	114.92	20	14 5 14.83	8 4 27.3	100.71
21	12 21 25.75	0 31 27.7	114.89	21	14 7 26.28	8 14 30.0	100.17
22	12 23 39.82	0 19 58.5	114.85	22	14 9 37.70	8 24 29.4	99.62
23	12 25 53.80	N. 0 8 29.5	114.80	23	14 11 49.10	S. 8 34 25.4	99.06
MONDAY 6.				WEDNESDAY 8.			
0	12 28 7.69	S. 0 2 59.1	114.73	0	14 14 0.47	S. 8 44 18.1	98.49
1	12 30 21.50	0 14 27.2	114.64	1	14 16 11.82	8 54 7.3	97.92
2	12 32 35.22	0 25 54.8	114.55	2	14 18 23.14	9 3 53.1	97.33
3	12 34 48.86	0 37 21.8	114.45	3	14 20 34.45	9 13 35.3	96.73
4	12 37 2.42	0 48 48.2	114.33	4	14 22 45.73	9 23 13.9	96.13
5	12 39 15.89	1 0 13.8	114.20	5	14 24 56.99	9 32 48.9	95.53
6	12 41 29.29	1 11 38.6	114.06	6	14 27 8.24	9 42 20.3	94.91
7	12 43 42.61	1 23 2.6	113.91	7	14 29 19.46	9 51 47.9	94.28
8	12 45 55.86	1 34 25.6	113.75	8	14 31 30.67	10 1 11.7	93.65
9	12 48 9.03	1 45 47.6	113.57	9	14 33 41.85	10 10 31.7	93.02
10	12 50 22.12	1 57 8.5	113.38	10	14 35 53.02	10 19 47.9	92.38
11	12 52 35.15	2 8 28.2	113.19	11	14 38 4.17	10 29 0.2	91.72
12	12 54 48.11	2 19 46.8	112.99	12	14 40 15.31	10 38 8.5	91.05
13	12 57 1.00	2 31 4.1	112.76	13	14 42 26.43	10 47 12.8	90.38
14	12 59 13.83	2 42 19.9	112.53	14	14 44 37.54	10 56 13.1	89.71
15	13 1 26.59	2 53 34.4	112.29	15	14 46 48.63	11 5 9.3	89.03
16	13 3 39.29	3 4 47.4	112.03	16	14 48 59.71	11 14 1.4	88.34
17	13 5 51.92	3 15 58.8	111.77	17	14 51 10.77	11 22 49.4	87.64
18	13 8 4.50	3 27 8.6	111.49	18	14 53 21.82	11 31 33.1	86.93
19	13 10 17.02	3 38 16.7	111.20	19	14 55 32.86	11 40 12.6	86.22
20	13 12 29.48	3 49 23.0	110.90	20	14 57 43.88	11 48 47.8	85.51
21	13 14 41.88	4 0 27.5	110.60	21	14 59 54.89	11 57 18.7	84.79
22	13 16 54.23	4 11 30.2	110.28	22	15 2 5.89	12 5 45.3	84.06
23	13 19 6.53	4 22 30.9	109.94	23	15 4 16.88	12 14 7.5	83.32
24	13 21 18.78	S. 4 33 29.5	109.60	24	15 6 27.85	S. 12 22 25.2	82.58

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
THURSDAY 9.				SATURDAY 11.			
0	h m s 15 6 27.85	S. 12 22 25.2	82.58	0	h m s 16 50 56.56	S. 17 24 15.1	41.79
1	15 8 38.81	12 30 38.5	81.84	1	16 53 6.58	17 28 23.1	40.88
2	15 10 49.76	12 38 47.3	81.08	2	16 55 16.56	17 32 25.6	39.96
3	15 13 0.70	12 46 51.5	80.32	3	16 57 26.50	17 36 22.6	39.03
4	15 15 11.62	12 54 51.1	79.56	4	16 59 36.40	17 40 14.0	38.11
5	15 17 22.54	13 2 46.2	78.79	5	17 1 46.27	17 43 59.9	37.18
6	15 19 33.44	13 10 36.6	78.01	6	17 3 56.09	17 47 40.2	36.26
7	15 21 44.33	13 18 22.3	77.23	7	17 6 5.87	17 51 15.0	35.33
8	15 23 55.21	13 26 3.3	76.44	8	17 8 15.61	17 54 44.2	34.41
9	15 26 6.08	13 33 39.6	75.65	9	17 10 25.31	17 58 7.9	33.48
10	15 28 16.93	13 41 11.1	74.86	10	17 12 34.96	18 1 26.0	32.55
11	15 30 27.77	13 48 37.9	74.06	11	17 14 44.56	18 4 38.5	31.62
12	15 32 38.60	13 55 59.8	73.25	12	17 16 54.12	18 7 45.4	30.69
13	15 34 49.42	14 3 16.9	72.43	13	17 19 3.63	18 10 46.8	29.76
14	15 37 0.22	14 10 29.0	71.61	14	17 21 13.10	18 13 42.6	28.83
15	15 39 11.01	14 17 36.3	70.80	15	17 23 22.51	18 16 32.8	27.90
16	15 41 21.79	14 24 38.6	69.98	16	17 25 31.87	18 19 17.4	26.97
17	15 43 32.56	14 31 36.0	69.15	17	17 27 41.18	18 21 56.5	26.04
18	15 45 43.31	14 38 28.4	68.32	18	17 29 50.44	18 24 29.9	25.11
19	15 47 54.04	14 45 15.8	67.48	19	17 31 59.64	18 26 57.8	24.18
20	15 50 4.76	14 51 58.1	66.63	20	17 34 8.79	18 29 20.1	23.25
21	15 52 15.47	14 58 35.4	65.78	21	17 36 17.88	18 31 36.8	22.32
22	15 54 26.16	15 5 7.5	64.93	22	17 38 26.91	18 33 47.9	21.39
23	15 56 36.83	S. 15 11 34.6	64.09	23	17 40 35.88	S. 18 35 53.5	20.46
FRIDAY 10.				SUNDAY 12.			
0	15 58 47.48	S. 15 17 56.6	63.23	0	17 42 44.79	S. 18 37 53.4	19.53
1	16 0 58.12	15 24 13.4	62.37	1	17 44 53.64	18 39 47.8	18.60
2	16 3 8.74	15 30 25.0	61.50	2	17 47 2.44	18 41 36.6	17.67
3	16 5 19.34	15 36 31.4	60.63	3	17 49 11.17	18 43 19.8	16.74
4	16 7 29.93	15 42 32.6	59.76	4	17 51 19.83	18 44 57.5	15.82
5	16 9 40.49	15 48 28.6	58.89	5	17 53 28.43	18 46 29.6	14.89
6	16 11 51.03	15 54 19.3	58.01	6	17 55 36.96	18 47 56.2	13.97
7	16 14 1.55	16 0 4.7	57.13	7	17 57 45.43	18 49 17.2	13.04
8	16 16 12.06	16 5 44.9	56.25	8	17 59 53.83	18 50 32.7	12.11
9	16 18 22.54	16 11 19.7	55.36	9	18 2 2.16	18 51 42.6	11.19
10	16 20 33.00	16 16 49.2	54.47	10	18 4 10.41	18 52 47.0	10.26
11	16 22 43.43	16 22 13.4	53.58	11	18 6 18.60	18 53 45.8	9.34
12	16 24 53.84	16 27 32.2	52.68	12	18 8 26.71	18 54 39.1	8.43
13	16 27 4.22	16 32 45.6	51.79	13	18 10 34.75	18 55 26.9	7.51
14	16 29 14.58	16 37 53.7	50.89	14	18 12 42.72	18 56 9.2	6.59
15	16 31 24.91	16 42 56.3	49.99	15	18 14 50.61	18 56 46.0	5.68
16	16 33 35.22	16 47 53.6	49.09	16	18 16 58.42	18 57 17.3	4.77
17	16 35 45.50	16 52 45.4	48.18	17	18 19 6.16	18 57 43.2	3.85
18	16 37 55.74	16 57 31.8	47.27	18	18 21 13.82	18 58 3.5	2.93
19	16 40 5.96	17 2 12.7	46.36	19	18 23 21.41	18 58 18.4	2.02
20	16 42 16.15	17 6 48.1	45.45	20	18 25 28.91	18 58 27.8	1.11
21	16 44 26.30	17 11 18.1	44.54	21	18 27 36.33	18 58 31.8	0.21
22	16 46 36.42	17 15 42.6	43.63	22	18 29 43.67	18 58 30.4	0.69
23	16 48 46.51	17 20 1.6	42.71	23	18 31 50.93	18 58 23.5	1.60
24	16 50 56.56	S. 17 24 15.1	41.79	24	18 33 58.11	S. 18 58 11.2	2.50

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 13.				WEDNESDAY 15.			
0	18 ^h 33 ^m 58 ^s 11	S. 18° 58' 11" 2	2° 50'	0	20 ^h 13 ^m 53 ^s 38	S. 17° 6' 46" 9	42° 84'
1	18 36 5 20	18 57 53 5	3° 40'	1	20 15 55 89	17 2 27 6	43° 61'
2	18 38 12 21	18 57 30 4	4° 29'	2	20 17 58 30	16 58 3 6	44° 37'
3	18 40 19 13	18 57 2 0	5° 19'	3	20 20 0 61	16 53 35 1	45° 13'
4	18 42 25 97	18 56 28 1	6° 09'	4	20 22 2 83	16 49 2 1	45° 88'
5	18 44 32 72	18 55 48 9	6° 98'	5	20 24 4 95	16 44 24 5	46° 63'
6	18 46 39 38	18 55 4 4	7° 87'	6	20 26 6 98	16 39 42 5	47° 38'
7	18 48 45 95	18 54 14 5	8° 76'	7	20 28 8 91	16 34 56 0	48° 13'
8	18 50 52 44	18 53 19 3	9° 64'	8	20 30 10 74	16 30 5 0	48° 87'
9	18 52 58 83	18 52 18 8	10° 52'	9	20 32 12 48	16 25 9 6	49° 60'
10	18 55 5 14	18 51 13 0	11° 41'	10	20 34 14 13	16 20 9 8	50° 33'
11	18 57 11 35	18 50 1 9	12° 29'	11	20 36 15 69	16 15 5 6	51° 06'
12	18 59 17 47	18 48 45 5	13° 17'	12	20 38 17 15	16 9 57 0	51° 79'
13	19 1 23 50	18 47 23 9	14° 03'	13	20 40 18 52	16 4 44 1	52° 52'
14	19 3 29 44	18 45 57 1	14° 91'	14	20 42 19 81	15 59 26 8	53° 23'
15	19 5 35 28	18 44 25 0	15° 78'	15	20 44 21 00	15 54 5 3	53° 94'
16	19 7 41 03	18 42 47 8	16° 64'	16	20 46 22 10	15 48 39 5	54° 66'
17	19 9 46 68	18 41 5 3	17° 51'	17	20 48 23 12	15 43 9 4	55° 36'
18	19 11 52 23	18 39 17 7	18° 37'	18	20 50 24 04	15 37 35 2	56° 06'
19	19 13 57 69	18 37 24 9	19° 22'	19	20 52 24 88	15 31 56 7	56° 77'
20	19 16 3 06	18 35 27 0	20° 08'	20	20 54 25 64	15 26 14 0	57° 46'
21	19 18 8 33	18 33 23 9	20° 94'	21	20 56 26 31	15 20 27 2	58° 15'
22	19 20 13 50	18 31 15 7	21° 78'	22	20 58 26 89	15 14 36 2	58° 83'
23	19 22 18 58	S. 18° 29' 2 5	22° 63'	23	21 0 27 39	S. 15° 8' 41 2	59° 51'
TUESDAY 14.				THURSDAY 16.			
0	19 24 23 56	S. 18° 26' 44 1	23° 48'	0	21 2 27 81	S. 15° 2' 42 0	60° 20'
1	19 26 28 44	18 24 20 7	24° 33'	1	21 4 28 15	14 56 38 8	60° 88'
2	19 28 33 22	18 21 52 2	25° 16'	2	21 6 28 40	14 50 31 5	61° 54'
3	19 30 37 91	18 19 18 8	25° 99'	3	21 8 28 57	14 44 20 3	62° 21'
4	19 32 42 49	18 16 40 3	26° 83'	4	21 10 28 67	14 38 5 0	62° 88'
5	19 34 46 98	18 13 56 8	27° 67'	5	21 12 28 69	14 31 45 8	63° 53'
6	19 36 51 37	18 11 8 3	28° 49'	6	21 14 28 64	14 25 22 6	64° 19'
7	19 38 55 66	18 8 14 9	29° 32'	7	21 16 28 51	14 18 55 5	64° 83'
8	19 40 59 85	18 5 16 5	30° 14'	8	21 18 28 30	14 12 24 6	65° 48'
9	19 43 3 94	18 2 13 2	30° 95'	9	21 20 28 02	14 5 49 7	66° 13'
10	19 45 7 93	17 59 5 1	31° 77'	10	21 22 27 67	13 59 11 0	66° 77'
11	19 47 11 82	17 55 52 0	32° 58'	11	21 24 27 25	13 52 28 5	67° 40'
12	19 49 15 61	17 52 34 1	33° 39'	12	21 26 26 77	13 45 42 2	68° 03'
13	19 51 19 30	17 49 11 3	34° 19'	13	21 28 26 21	13 38 52 1	68° 66'
14	19 53 22 90	17 45 43 8	34° 99'	14	21 30 25 59	13 31 58 3	69° 28'
15	19 55 26 39	17 42 11 4	35° 80'	15	21 32 24 90	13 25 0 8	69° 90'
16	19 57 29 79	17 38 34 2	36° 59'	16	21 34 24 15	13 17 59 5	70° 51'
17	19 59 33 08	17 34 52 3	37° 38'	17	21 36 23 33	13 10 54 6	71° 12'
18	20 1 36 28	17 31 5 6	38° 18'	18	21 38 22 46	13 3 46 0	71° 73'
19	20 3 39 38	17 27 14 2	38° 97'	19	21 40 21 52	12 56 33 9	72° 33'
20	20 5 42 37	17 23 18 0	39° 75'	20	21 42 20 53	12 49 18 1	72° 93'
21	20 7 45 27	17 19 17 2	40° 52'	21	21 44 19 47	12 41 58 8	73° 52'
22	20 9 48 08	17 15 11 8	41° 29'	22	21 46 18 36	12 34 35 9	74° 11'
23	20 11 50 78	17 11 1 7	42° 07'	23	21 48 17 20	12 27 9 5	74° 69'
24	20 13 53 38	S. 17° 6' 46 9	42° 84'	24	21 50 15 99	S. 12° 19' 39 6	75° 26'

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 17.				SUNDAY 19.			
0	h m s 21 50 15.99	S. 12 19 39.6	75.26	0	h m s 23 24 49.87	S. 5 20 51.6	97.23
1	21 52 14.72	12 12 6.3	75.84	1	23 26 48.30	5 11 7.2	97.56
2	21 54 13.41	12 4 29.5	76.41	2	23 28 46.77	5 1 20.9	97.88
3	21 56 12.04	11 56 49.3	76.97	3	23 30 45.29	4 51 32.7	98.18
4	21 58 10.63	11 49 5.8	77.53	4	23 32 43.86	4 41 42.7	98.48
5	22 0 9.17	11 41 18.9	78.09	5	23 34 42.48	4 31 50.9	98.78
6	22 2 7.67	11 33 28.7	78.64	6	23 36 41.15	4 21 57.3	99.08
7	22 4 6.13	11 25 35.2	79.19	7	23 38 39.88	4 12 1.9	99.37
8	22 6 4.55	11 17 38.4	79.73	8	23 40 38.67	4 2 4.9	99.64
9	22 8 2.93	11 9 38.4	80.27	9	23 42 37.52	3 52 6.2	99.91
10	22 10 1.28	11 1 35.2	80.80	10	23 44 36.43	3 42 5.9	100.18
11	22 11 59.59	10 53 28.8	81.33	11	23 46 35.41	3 32 4.0	100.43
12	22 13 57.86	10 45 19.3	81.85	12	23 48 34.45	3 22 0.7	100.68
13	22 15 56.11	10 37 6.6	82.37	13	23 50 33.57	3 11 55.8	100.93
14	22 17 54.32	10 28 50.9	82.88	14	23 52 32.76	3 1 49.5	101.17
15	22 19 52.51	10 20 32.0	83.39	15	23 54 32.02	2 51 41.7	101.41
16	22 21 50.67	10 12 10.1	83.89	16	23 56 31.36	2 41 32.6	101.63
17	22 23 48.81	10 3 45.3	84.39	17	23 58 30.78	2 31 22.1	101.85
18	22 25 46.92	9 55 17.4	84.89	18	0 0 30.28	2 21 10.4	102.06
19	22 27 45.02	9 46 46.6	85.38	19	0 2 29.86	2 10 57.4	102.27
20	22 29 43.09	9 38 12.9	85.86	20	0 4 29.54	2 0 43.2	102.46
21	22 31 41.15	9 29 36.3	86.34	21	0 6 29.30	1 50 27.9	102.65
22	22 33 39.20	9 20 56.8	86.81	22	0 8 29.15	1 40 11.4	102.83
23	22 35 37.23	S. 9 12 14.5	87.28	23	0 10 29.10	S. 1 29 53.9	103.01
SATURDAY 18.				MONDAY 20.			
0	22 37 35.25	S. 9 3 29.4	87.75	0	0 12 29.14	S. 1 19 35.3	103.18
1	22 39 33.26	8 54 41.5	88.21	1	0 14 29.29	1 9 15.8	103.33
2	22 41 31.27	8 45 50.9	88.66	2	0 16 29.53	0 58 55.3	103.48
3	22 43 29.27	8 36 57.6	89.11	3	0 18 29.88	0 48 34.0	103.63
4	22 45 27.27	8 28 1.6	89.55	4	0 20 30.34	0 38 11.8	103.77
5	22 47 25.27	8 19 3.0	89.98	5	0 22 30.90	0 27 48.8	103.90
6	22 49 23.26	8 10 1.8	90.41	6	0 24 31.57	0 17 25.0	104.02
7	22 51 21.26	8 0 58.0	90.84	7	0 26 32.36	S. 0 7 0.5	104.13
8	22 53 19.27	7 51 51.7	91.26	8	0 28 33.27	N. 0 3 24.6	104.23
9	22 55 17.29	7 42 42.8	91.68	9	0 30 34.29	0 13 50.3	104.33
10	22 57 15.31	7 33 31.5	92.09	10	0 32 35.43	0 24 16.6	104.42
11	22 59 13.35	7 24 17.7	92.50	11	0 34 36.69	0 34 43.4	104.51
12	23 1 11.40	7 15 1.5	92.90	12	0 36 38.08	0 45 10.7	104.58
13	23 3 9.47	7 5 42.9	93.29	13	0 38 39.60	0 55 38.4	104.65
14	23 5 7.55	6 56 22.0	93.68	14	0 40 41.24	1 6 6.5	104.71
15	23 7 5.65	6 46 58.8	94.06	15	0 42 43.02	1 16 34.9	104.76
16	23 9 3.78	6 37 33.3	94.44	16	0 44 44.93	1 27 3.6	104.80
17	23 11 1.93	6 28 5.5	94.81	17	0 46 46.98	1 37 32.5	104.83
18	23 13 0.11	6 18 35.6	95.17	18	0 48 49.17	1 48 1.5	104.85
19	23 14 58.32	6 9 3.5	95.53	19	0 50 51.50	1 58 30.7	104.87
20	23 16 56.56	5 59 29.2	95.89	20	0 52 53.98	2 9 0.0	104.87
21	23 18 54.83	5 49 52.8	96.23	21	0 54 56.60	2 19 29.2	104.87
22	23 20 53.14	5 40 14.4	96.57	22	0 56 59.37	2 29 58.4	104.86
23	23 22 51.49	5 30 34.0	96.90	23	0 59 2.29	2 40 27.6	104.85
24	23 24 49.87	S. 5 20 51.6	97.23	24	1 1 5.37	N. 2 50 56.6	104.82

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
TUESDAY 21.				THURSDAY 23.			
0	1 1 5 ^h 37 ^m	N. 2 50 56 ^s 6	104 ^o 82	0	2 43 14 ^h 18 ^m	N. 10 52 41 ^s 0	91 ^o 98
1	1 3 8 ^h 60 ^m	3 1 25 ^s 4	104 ^o 78	1	2 45 27 ^h 18 ^m	11 1 51 ^s 3	91 ^o 46
2	1 5 11 ^h 99 ^m	3 11 54 ^s 0	104 ^o 73	2	2 47 40 ^h 43 ^m	11 10 58 ^s 5	90 ^o 93
3	1 7 15 ^h 54 ^m	3 22 22 ^s 2	104 ^o 68	3	2 49 53 ^h 91 ^m	11 20 2 ^s 4	90 ^o 38
4	1 9 19 ^h 25 ^m	3 32 50 ^s 1	104 ^o 62	4	2 52 7 ^h 63 ^m	11 29 3 ^s 0	89 ^o 82
5	1 11 23 ^h 13 ^m	3 43 17 ^s 6	104 ^o 55	5	2 54 21 ^h 60 ^m	11 38 0 ^s 2	89 ^o 24
6	1 13 27 ^h 18 ^m	3 53 44 ^s 7	104 ^o 47	6	2 56 35 ^h 81 ^m	11 46 53 ^s 9	88 ^o 66
7	1 15 31 ^h 39 ^m	4 4 11 ^s 2	104 ^o 37	7	2 58 50 ^h 25 ^m	11 55 44 ^s 1	88 ^o 07
8	1 17 35 ^h 77 ^m	4 14 37 ^s 1	104 ^o 27	8	3 1 4 ^h 94 ^m	12 4 30 ^s 7	87 ^o 47
9	1 19 40 ^h 33 ^m	4 25 2 ^s 4	104 ^o 16	9	3 3 19 ^h 88 ^m	12 13 13 ^s 7	86 ^o 85
10	1 21 45 ^h 07 ^m	4 35 27 ^s 0	104 ^o 04	10	3 5 35 ^h 05 ^m	12 21 52 ^s 9	86 ^o 22
11	1 23 49 ^h 98 ^m	4 45 50 ^s 9	103 ^o 91	11	3 7 50 ^h 47 ^m	12 30 28 ^s 3	85 ^o 58
12	1 25 55 ^h 08 ^m	4 56 13 ^s 9	103 ^o 77	12	3 10 6 ^h 13 ^m	12 38 59 ^s 9	84 ^o 94
13	1 28 0 ^h 36 ^m	5 6 36 ^s 1	103 ^o 63	13	3 12 22 ^h 04 ^m	12 47 27 ^s 6	84 ^o 28
14	1 30 5 ^h 82 ^m	5 16 57 ^s 4	103 ^o 47	14	3 14 38 ^h 19 ^m	12 55 51 ^s 2	83 ^o 60
15	1 32 11 ^h 46 ^m	5 27 17 ^s 7	103 ^o 30	15	3 16 54 ^h 59 ^m	13 4 10 ^s 8	82 ^o 92
16	1 34 17 ^h 29 ^m	5 37 37 ^s 0	103 ^o 12	16	3 19 11 ^h 23 ^m	13 12 26 ^s 3	82 ^o 23
17	1 36 23 ^h 32 ^m	5 47 55 ^s 2	102 ^o 94	17	3 21 28 ^h 11 ^m	13 20 37 ^s 6	81 ^o 53
18	1 38 29 ^h 53 ^m	5 58 12 ^s 3	102 ^o 74	18	3 23 45 ^h 24 ^m	13 28 44 ^s 6	80 ^o 81
19	1 40 35 ^h 94 ^m	6 8 28 ^s 1	102 ^o 53	19	3 26 2 ^h 61 ^m	13 36 47 ^s 3	80 ^o 08
20	1 42 42 ^h 55 ^m	6 18 42 ^s 6	102 ^o 31	20	3 28 20 ^h 22 ^m	13 44 45 ^s 0	79 ^o 34
21	1 44 49 ^h 35 ^m	6 28 55 ^s 8	102 ^o 08	21	3 30 38 ^h 08 ^m	13 52 39 ^s 4	78 ^o 60
22	1 46 56 ^h 36 ^m	6 39 7 ^s 6	101 ^o 85	22	3 32 56 ^h 18 ^m	14 0 28 ^s 8	77 ^o 85
23	1 49 3 ^h 57 ^m	N. 6 49 18 ^s 0	101 ^o 61	23	3 35 14 ^h 52 ^m	N. 14 8 13 ^s 6	77 ^o 07
WEDNESDAY 22.				FRIDAY 24.			
0	1 51 10 ^h 97 ^m	N. 6 59 26 ^s 9	101 ^o 35	0	3 37 33 ^h 10 ^m	N. 14 15 53 ^s 6	76 ^o 29
1	1 53 18 ^h 58 ^m	7 9 34 ^s 2	101 ^o 08	1	3 39 51 ^h 92 ^m	14 23 29 ^s 0	75 ^o 51
2	1 55 26 ^h 41 ^m	7 19 39 ^s 9	100 ^o 80	2	3 42 10 ^h 98 ^m	14 30 59 ^s 7	74 ^o 71
3	1 57 34 ^h 44 ^m	7 29 43 ^s 8	100 ^o 50	3	3 44 30 ^h 28 ^m	14 38 25 ^s 5	73 ^o 89
4	1 59 42 ^h 68 ^m	7 39 45 ^s 9	100 ^o 20	4	3 46 49 ^h 82 ^m	14 45 46 ^s 4	73 ^o 06
5	2 1 51 ^h 13 ^m	7 49 46 ^s 2	99 ^o 90	5	3 49 9 ^h 60 ^m	14 53 2 ^s 3	72 ^o 23
6	2 3 59 ^h 80 ^m	7 59 44 ^s 7	99 ^o 58	6	3 51 29 ^h 61 ^m	15 0 13 ^s 2	71 ^o 40
7	2 6 8 ^h 69 ^m	8 9 41 ^s 2	99 ^o 25	7	3 53 49 ^h 86 ^m	15 7 19 ^s 1	70 ^o 55
8	2 8 17 ^h 79 ^m	8 19 35 ^s 7	98 ^o 91	8	3 56 10 ^h 34 ^m	15 14 19 ^s 8	69 ^o 68
9	2 10 27 ^h 11 ^m	8 29 28 ^s 1	98 ^o 56	9	3 58 31 ^h 05 ^m	15 21 15 ^s 2	68 ^o 80
10	2 12 36 ^h 66 ^m	8 39 18 ^s 4	98 ^o 20	10	4 0 51 ^h 99 ^m	15 28 5 ^s 4	67 ^o 91
11	2 14 46 ^h 42 ^m	8 49 6 ^s 5	97 ^o 83	11	4 3 13 ^h 16 ^m	15 34 50 ^s 2	67 ^o 02
12	2 16 56 ^h 41 ^m	8 58 52 ^s 3	97 ^o 44	12	4 5 34 ^h 56 ^m	15 41 29 ^s 6	66 ^o 12
13	2 19 6 ^h 62 ^m	9 8 35 ^s 8	97 ^o 04	13	4 7 56 ^h 19 ^m	15 48 3 ^s 6	65 ^o 20
14	2 21 17 ^h 06 ^m	9 18 16 ^s 8	96 ^o 63	14	4 10 18 ^h 04 ^m	15 54 32 ^s 0	64 ^o 27
15	2 23 27 ^h 73 ^m	9 27 55 ^s 4	96 ^o 22	15	4 12 40 ^h 11 ^m	16 0 54 ^s 9	63 ^o 34
16	2 25 38 ^h 63 ^m	9 37 31 ^s 5	95 ^o 80	16	4 15 2 ^h 41 ^m	16 7 12 ^s 1	62 ^o 39
17	2 27 49 ^h 76 ^m	9 47 5 ^s 0	95 ^o 36	17	4 17 24 ^h 92 ^m	16 13 23 ^s 6	61 ^o 44
18	2 30 1 ^h 11 ^m	9 56 35 ^s 8	94 ^o 90	18	4 19 47 ^h 65 ^m	16 19 29 ^s 4	60 ^o 48
19	2 32 12 ^h 70 ^m	10 6 3 ^s 8	94 ^o 44	19	4 22 10 ^h 60 ^m	16 25 29 ^s 4	59 ^o 50
20	2 34 24 ^h 53 ^m	10 15 29 ^s 1	93 ^o 98	20	4 24 33 ^h 76 ^m	16 31 23 ^s 4	58 ^o 52
21	2 36 36 ^h 59 ^m	10 24 51 ^s 6	93 ^o 50	21	4 26 57 ^h 13 ^m	16 37 11 ^s 6	57 ^o 53
22	2 38 48 ^h 88 ^m	10 34 11 ^s 1	93 ^o 00	22	4 29 20 ^h 71 ^m	16 42 53 ^s 8	56 ^o 53
23	2 41 1 ^h 41 ^m	10 43 27 ^s 6	92 ^o 49	23	4 31 44 ^h 50 ^m	16 48 29 ^s 9	55 ^o 52
24	2 43 14 ^h 18 ^m	N. 10 52 41 ^s 0	91 ^o 98	24	4 34 8 ^h 48 ^m	N. 16 54 0 ^s 0	54 ^o 50

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 25.				MONDAY 27.			
0	h m s 4 34 8.48	N.16 54 0.0	54.50	0	h m s 6 32 15.65	N.19 4 54.4	1.86
1	4 36 32.67	16 59 23.9	53.47	1	6 34 45.35	19 4 39.5	3.12
2	4 38 57.06	17 4 41.7	52.44	2	6 37 15.06	19 4 17.0	4.38
3	4 41 21.65	17 9 53.2	51.39	3	6 39 44.78	19 3 46.9	5.63
4	4 43 46.43	17 14 58.4	50.34	4	6 42 14.50	19 3 9.4	6.88
5	4 46 11.40	17 19 57.3	49.28	5	6 44 44.21	19 2 24.3	8.14
6	4 48 36.56	17 24 49.8	48.21	6	6 47 13.92	19 1 31.7	9.40
7	4 51 1.90	17 29 35.8	47.13	7	6 49 43.62	19 0 31.5	10.66
8	4 53 27.42	17 34 15.4	46.05	8	6 52 13.30	18 59 23.8	11.91
9	4 55 53.12	17 38 48.4	44.96	9	6 54 42.96	18 58 8.6	13.16
10	4 58 19.00	17 43 14.9	43.86	10	6 57 12.60	18 56 45.9	14.40
11	5 0 45.05	17 47 34.7	42.75	11	6 59 42.21	18 55 15.8	15.65
12	5 3 11.27	17 51 47.9	41.64	12	7 2 11.79	18 53 38.1	16.91
13	5 5 37.66	17 55 54.4	40.51	13	7 4 41.33	18 51 52.9	18.15
14	5 8 4.20	17 59 54.1	39.38	14	7 7 10.82	18 50 0.3	19.38
15	5 10 30.91	18 3 47.0	38.25	15	7 9 40.26	18 48 0.3	20.62
16	5 12 57.77	18 7 33.1	37.11	16	7 12 9.66	18 45 52.8	21.86
17	5 15 24.79	18 11 12.3	35.96	17	7 14 39.00	18 43 37.9	23.10
18	5 17 51.95	18 14 44.6	34.80	18	7 17 8.28	18 41 15.6	24.33
19	5 20 19.26	18 18 9.9	33.64	19	7 19 37.50	18 38 45.9	25.56
20	5 22 46.70	18 21 28.3	32.48	20	7 22 6.66	18 36 8.9	26.78
21	5 25 14.29	18 24 39.7	31.31	21	7 24 35.74	18 33 24.5	28.01
22	5 27 42.04	18 27 44.0	30.13	22	7 27 4.75	18 30 32.8	29.22
23	5 30 9.85	N.18 30 41.2	28.94	23	7 29 33.68	N.18 27 33.9	30.43
SUNDAY 26.				TUESDAY 28.			
0	5 32 37.82	N.18 33 31.3	27.76	0	7 32 2.53	N.18 24 27.7	31.64
1	5 35 5.92	18 36 14.3	26.57	1	7 34 31.29	18 21 14.2	32.84
2	5 37 34.13	18 38 50.1	25.36	2	7 36 59.96	18 17 53.6	34.04
3	5 40 2.45	18 41 18.6	24.15	3	7 39 28.54	18 14 25.7	35.24
4	5 42 30.88	18 43 39.9	22.95	4	7 41 57.02	18 10 50.7	36.43
5	5 44 59.42	18 45 54.0	21.74	5	7 44 25.40	18 7 8.5	37.62
6	5 47 28.05	18 48 0.8	20.52	6	7 46 53.67	18 3 19.3	38.79
7	5 49 56.78	18 50 0.3	19.30	7	7 49 21.83	17 59 23.0	39.96
8	5 52 25.61	18 51 52.4	18.07	8	7 51 49.89	17 55 19.7	41.13
9	5 54 54.52	18 53 37.1	16.84	9	7 54 17.83	17 51 9.4	42.29
10	5 57 23.51	18 55 14.5	15.61	10	7 56 45.65	17 46 52.2	43.45
11	5 59 52.58	18 56 44.5	14.37	11	7 59 13.35	17 42 28.0	44.60
12	6 2 21.73	18 58 7.0	13.13	12	8 1 40.93	17 37 57.0	45.74
13	6 4 50.95	18 59 22.1	11.90	13	8 4 8.38	17 33 19.1	46.88
14	6 7 20.23	19 0 29.8	10.66	14	8 6 35.70	17 28 34.4	48.01
15	6 9 49.57	19 1 30.1	9.41	15	8 9 2.89	17 23 42.9	49.14
16	6 12 18.97	19 2 22.8	8.16	16	8 11 29.94	17 18 44.7	50.26
17	6 14 48.42	19 3 8.0	6.92	17	8 13 56.86	17 13 39.8	51.37
18	6 17 17.92	19 3 45.8	5.67	18	8 16 23.63	17 8 28.3	52.47
19	6 19 47.46	19 4 16.1	4.42	19	8 18 50.26	17 3 10.2	53.56
20	6 22 17.04	19 4 38.8	3.16	20	8 21 16.75	16 57 45.6	54.65
21	6 24 46.65	19 4 54.0	1.91	21	8 23 43.09	16 52 14.4	55.73
22	6 27 16.29	19 5 1.7	0.65	22	8 26 9.28	16 46 36.8	56.81
23	6 29 45.96	19 5 1.8	0.61	23	8 28 35.32	16 40 52.7	57.88
24	6 32 15.65	N.19 4 54.4	1.86	24	8 31 1.20	N.16 35 2.3	58.93

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 29.				THURSDAY 30.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	8 31 1'20	N.16 35 2'3	58'93	0	9 28 31'71	N.13 45 14'9	81'67
1	8 33 26'93	16 29 5'6	59'98	1	9 30 53'25	13 37 2'4	82'49
2	8 35 52'49	16 23 2'5	61'03	2	9 33 14'61	13 28 45'0	83'31
3	8 38 17'90	16 16 53'2	62'06	3	9 35 35'78	13 20 22'7	84'12
4	8 40 43'14	16 10 37'8	63'08	4	9 37 56'77	13 11 55'6	84'92
5	8 43 8'22	16 4 16'3	64'10	5	9 40 17'57	13 3 23'7	85'70
6	8 45 33'14	15 57 48'7	65'11	6	9 42 38'19	12 54 47'2	86'47
7	8 47 57'88	15 51 15'0	66'11	7	9 44 58'63	12 46 6'0	87'24
8	8 50 22'46	15 44 35'4	67'10	8	9 47 18'88	12 37 20'3	87'99
9	8 52 46'86	15 37 49'8	68'08	9	9 49 38'95	12 28 30'1	88'73
10	8 55 11'09	15 30 58'4	69'05	10	9 51 58'84	12 19 35'5	89'47
11	8 57 35'15	15 24 1'2	70'01	11	9 54 18'54	12 10 36'5	90'19
12	8 59 59'04	15 16 58'3	70'96	12	9 56 38'06	12 1 33'2	90'90
13	9 2 22'75	15 9 49'7	71'91	13	9 58 57'40	11 52 25'7	91'60
14	9 4 46'29	15 2 35'4	72'85	14	10 1 16'57	11 43 14'0	92'29
15	9 7 9'64	14 55 15'5	73'77	15	10 3 35'55	11 33 58'2	92'97
16	9 9 32'82	14 47 50'1	74'68	16	10 5 54'35	11 24 38'3	93'64
17	9 11 55'82	14 40 19'3	75'59	17	10 8 12'97	11 15 14'5	94'29
18	9 14 18'63	14 32 43'0	76'50	18	10 10 31'42	11 5 46'8	94'94
19	9 16 41'27	14 25 1'3	77'38	19	10 12 49'69	10 56 15'2	95'57
20	9 19 3'72	14 17 14'4	78'26	20	10 15 7'78	10 46 39'9	96'19
21	9 21 25'99	14 9 22'2	79'13	21	10 17 25'70	10 37 0'9	96'81
22	9 23 48'08	14 1 24'9	79'98	22	10 19 43'45	10 27 18'2	97'42
23	9 26 9'99	13 53 22'4	80'83	23	10 22 1'02	10 17 31'9	98'00
24	9 28 31'71	N.13 45 14'9	81'67	24	10 24 18'42	N.10 7 42'2	98'57

PHASES OF THE MOON.

Apr. 6	○ Full Moon	- - - - -	h m
14	☾ Last Quarter	- - - - -	10 34'5
22	● New Moon	- - - - -	8 19'7
29	☽ First Quarter	- - - - -	6 17'9

Apr. 3	☾ Perigee	- - - - -	h
15	☾ Apogee	- - - - -	4
28	☾ Perigee	- - - - -	15

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
1	SUN W.	102 54 47	2588	104 33 59	2582	106 13 18	2577	107 52 44	2572
	Venus W.	60 51 50	2671	62 29 8	2664	64 6 36	2659	65 44 11	2652
	Aldebaran W.	46 56 17	2269	48 43 2	2264	50 29 55	2260	52 16 54	2254
	Regulus E.	33 13 5	2272	31 26 24	2266	29 39 35	2262	27 52 40	2257
	Spica E.	86 54 55	2292	85 8 44	2287	83 22 25	2283	81 36 0	2278
2	SUN W.	116 11 32	2551	117 51 34	2548	119 31 41	2545	121 11 52	2542
	Venus W.	73 54 6	2626	75 32 25	2622	77 10 50	2618	78 49 21	2615
	Aldebaran W.	61 13 34	2233	63 1 12	2230	64 48 55	2227	66 36 43	2224
	Pollux W.	19 54 41	2263	21 27 47	2267	23 2 58	2260	24 39 51	2267
	Spica E.	72 42 18	2259	70 55 18	2256	69 8 13	2254	67 21 5	2251
3	Saturn E.	116 13 11	2232	114 25 31	2229	112 37 46	2225	110 49 55	2221
	Venus W.	87 2 53	2602	88 41 45	2602	90 20 37	2601	91 59 31	2601
	Aldebaran W.	75 36 39	2214	77 24 46	2213	79 12 55	2212	81 1 5	2211
	Pollux W.	33 1 11	2445	34 43 42	2444	36 26 43	2405	38 10 10	2390
	Spica E.	58 24 44	2245	56 37 24	2246	54 50 5	2247	53 2 47	2248
4	Saturn E.	101 49 39	2210	100 1 27	2209	98 13 13	2208	96 24 58	2208
	Antares E.	104 12 53	2280	102 26 24	2278	100 39 52	2277	98 53 18	2276
	Venus W.	100 13 53	2607	101 52 39	2609	103 31 22	2612	105 10 1	2616
	Aldebaran W.	90 1 52	2215	91 49 57	2217	93 37 59	2220	95 25 57	2223
	Pollux W.	46 51 54	2343	48 36 50	2338	50 21 54	2335	52 7 3	2332
5	Spica E.	44 7 4	2264	42 20 12	2270	40 33 28	2276	38 46 53	2283
	Saturn E.	87 23 44	2211	85 35 33	2214	83 47 26	2216	81 59 22	2219
	Antares E.	90 0 22	2278	88 13 50	2281	86 27 22	2283	84 40 57	2286
	Pollux W.	60 53 19	2333	62 38 31	2335	64 23 39	2338	66 8 43	2342
	Regulus W.	24 17 21	2247	26 4 39	2252	27 51 49	2258	29 38 51	2264
6	Spica E.	29 57 19	2241	28 12 19	2259	26 27 45	2380	24 43 41	2403
	Saturn E.	73 0 18	2240	71 12 50	2245	69 25 29	2251	67 38 17	2257
	Antares E.	75 50 21	2311	74 4 37	2317	72 19 2	2324	70 33 38	2333
	Pollux W.	74 52 14	2372	76 36 29	2380	78 20 32	2389	80 4 23	2397
	Regulus W.	38 31 34	2301	40 17 33	2310	42 3 18	2318	43 48 51	2328
7	Saturn E.	58 44 54	2266	56 58 49	2305	55 12 57	2315	53 27 20	2325
	Antares E.	61 49 48	2381	60 5 46	2393	58 22 2	2405	56 38 35	2419
	α Aquilæ E.	108 50 37	2830	107 16 48	2830	105 42 59	2830	104 9 10	2832
	Pollux W.	88 40 15	2450	90 22 39	2462	92 4 46	2474	93 46 36	2486
	Regulus W.	52 32 53	2382	54 16 53	2393	56 0 37	2405	57 44 4	2419
8	Saturn E.	44 43 4	2382	42 59 3	2394	41 15 20	2407	39 31 56	2421
	Antares E.	48 6 27	2498	46 25 11	2517	44 44 22	2537	43 4 0	2558
	α Aquilæ E.	96 21 16	2861	94 48 7	2871	93 15 11	2881	91 42 28	2893
	Pollux W.	102 11 9	2556	103 51 4	2571	105 30 39	2586	107 9 53	2602
	Regulus W.	66 16 42	2485	67 58 17	2499	69 39 32	2512	71 20 28	2527
9	Saturn E.	30 59 56	2495	29 18 36	2512	27 37 40	2529	25 57 7	2548
	Antares E.	34 50 10	2690	33 13 16	2723	31 37 7	2760	30 1 46	2801
	α Aquilæ E.	84 3 2	2967	82 32 8	2985	81 1 36	3003	79 31 27	3023
	Regulus W.	79 40 4	2600	81 18 59	2616	82 57 32	2630	84 35 46	2646
	Spica W.	26 34 12	2710	28 10 39	2714	29 47 1	2719	31 23 16	2726
	α Aquilæ E.	72 7 15	3137	70 39 50	3163	69 12 57	3190	67 46 36	3219

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
1	Sun W.	109 32 18	2568	111 11 57	2563	112 51 43	2559	114 31 35	2555
	Venus W.	67 21 55	2646	68 59 47	2641	70 37 47	2636	72 15 53	2631
	Aldebaran W.	54 4 1	2249	55 51 15	2245	57 38 35	2241	59 26 2	2237
	Regulus E.	26 5 38	2253	24 18 30	2249	22 31 16	2247	20 43 58	2243
	Spica E.	79 49 28	2273	78 2 49	2269	76 16 4	2266	74 29 14	2262
2	Sun W.	122 52 7	2539	124 32 26	2538	126 12 47	2536	127 53 10	2535
	Venus W.	80 27 56	2612	82 6 35	2609	83 45 18	2607	85 24 4	2604
	Aldebaran W.	68 24 35	2221	70 12 31	2219	72 0 30	2217	73 48 33	2215
	Pollux W.	26 18 9	2576	27 57 36	2535	29 38 1	2500	31 19 15	2470
	Spica E.	65 33 53	2249	63 46 38	2248	61 59 22	2246	60 12 3	2246
	Saturn E.	109 1 59	2218	107 13 59	2216	105 25 56	2214	103 37 49	2212
3	Venus W.	93 38 25	2601	95 17 19	2601	96 56 12	2602	98 35 4	2604
	Aldebaran W.	82 49 16	2212	84 37 26	2212	86 25 36	2213	88 13 45	2214
	Pollux W.	39 53 59	2377	41 38 6	2366	43 22 29	2357	45 7 6	2349
	Spica E.	51 15 31	2250	49 28 18	2252	47 41 8	2255	45 54 3	2260
	Saturn E.	94 36 42	2208	92 48 27	2208	91 0 11	2209	89 11 57	2210
	Antares E.	97 6 43	2275	95 20 7	2275	93 33 31	2275	91 46 55	2277
4	Venus W.	106 48 34	2620	108 27 2	2625	110 5 23	2630	111 43 37	2636
	Aldebaran W.	97 13 51	2226	99 1 40	2230	100 49 23	2234	102 37 0	2238
	Pollux W.	53 52 16	2330	55 37 31	2329	57 22 48	2330	59 8 4	2331
	Spica E.	37 0 29	2292	35 14 18	2302	33 28 21	2313	31 42 40	2326
	Saturn E.	80 11 22	2222	78 23 27	2226	76 35 38	2230	74 47 55	2234
	Antares E.	82 54 37	2290	81 8 23	2294	79 22 15	2299	77 36 14	2304
5	Pollux W.	67 53 41	2347	69 38 32	2353	71 23 15	2359	73 7 49	2365
	Regulus W.	31 25 44	2270	33 12 28	2277	34 59 1	2284	36 45 24	2293
	Spica E.	23 0 11	2433	21 17 23	2468	19 35 25	2513	17 54 30	2570
	Saturn E.	65 51 15	2264	64 4 23	2271	62 17 41	2279	60 31 11	2288
	Antares E.	68 48 26	2341	67 3 26	2350	65 18 39	2360	63 34 6	2370
6	Pollux W.	81 48 2	2407	83 31 27	2417	85 14 38	2427	86 57 34	2438
	Regulus W.	45 34 9	2338	47 19 13	2348	49 4 2	2359	50 48 35	2370
	Saturn E.	51 41 57	2335	49 56 49	2347	48 11 58	2358	46 27 22	2370
	Antares E.	54 55 27	2433	53 12 39	2448	51 30 13	2463	49 48 8	2480
	α Aquilæ E.	102 35 24	2835	101 1 41	2840	99 28 5	2845	97 54 36	2852
7	Pollux W.	95 28 9	2499	97 9 23	2513	98 50 18	2527	100 30 53	2541
	Regulus W.	59 27 12	2431	61 10 3	2444	62 52 35	2457	64 34 48	2471
	Saturn E.	37 48 51	2435	36 6 6	2449	34 23 41	2465	32 41 38	2479
	Antares E.	41 24 7	2581	39 44 46	2605	38 5 57	2631	36 27 44	2660
	α Aquilæ E.	90 10 0	2905	88 37 48	2919	87 5 53	2935	85 34 18	2950
8	Pollux W.	108 48 45	2618	110 27 15	2635	112 5 23	2651	113 43 9	2668
	Regulus W.	73 1 3	2541	74 41 19	2556	76 21 14	2570	78 0 50	2586
	Saturn E.	24 17 0	2567	22 37 19	2587	20 58 6	2609	19 19 24	2633
	Antares E.	28 27 19	2846	26 53 51	2898	25 21 29	2957	23 50 23	3026
	α Aquilæ E.	78 1 43	3044	76 32 25	3065	75 3 33	3088	73 35 9	3113
9	Regulus W.	86 13 39	2660	87 51 13	2676	89 28 25	2690	91 5 18	2705
	Spica W.	32 59 21	2735	34 35 15	2743	36 10 58	2753	37 46 27	2764

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Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
9	Fomalhaut E.	105 7 47	2926	103 36 1	2936	102 4 28	2948	100 33 10	2959
10	Regulus W.	92 41 51	2720	94 18 4	2735	95 53 58	2750	97 29 32	2763
	Spica W.	39 21 42	2775	40 56 43	2786	42 31 29	2797	44 6 1	2809
	α Aquilæ E.	60 43 43	3380	59 21 4	3418	57 59 8	3456	56 37 55	3497
	Fomalhaut E.	93 0 28	3024	91 30 45	3038	90 1 20	3053	88 32 13	3068
	Jupiter E.	116 59 39	2799	115 25 10	2814	113 51 0	2829	112 17 10	2844
	Mars E.	118 0 43	2991	116 30 19	3006	115 0 14	3022	113 30 28	3037
	SUN E.	139 51 50	3085	138 23 22	3100	136 55 12	3115	135 27 20	3129
11	Spica W.	51 54 46	2870	53 27 44	2881	55 0 28	2893	56 32 56	2904
	α Aquilæ E.	50 4 1	3741	48 47 57	3798	47 32 53	3860	46 18 53	3927
	Fomalhaut E.	81 11 17	3146	79 44 3	3162	78 17 9	3178	76 50 34	3196
	Jupiter E.	104 32 38	2914	103 0 37	2928	101 28 54	2941	99 57 27	2954
	Mars E.	106 6 18	3111	104 38 22	3126	103 10 44	3139	101 43 21	3153
	SUN E.	128 12 25	3201	126 46 17	3215	125 20 26	3230	123 54 52	3243
12	Spica W.	64 11 44	2958	65 42 49	2969	67 13 41	2978	68 44 21	2988
	Saturn W.	20 59 35	2959	22 30 39	2965	24 1 36	2970	25 32 26	2977
	Antares W.	20 13 34	3477	21 34 24	3418	22 56 20	3373	24 19 8	3337
	Fomalhaut E.	69 42 46	3283	68 18 15	3301	66 54 5	3319	65 30 16	3339
	Jupiter E.	92 24 9	3014	90 54 13	3025	89 24 31	3035	87 55 2	3046
	Mars E.	94 30 27	3215	93 4 36	3227	91 38 59	3238	90 13 35	3248
	SUN E.	116 50 48	3305	115 26 42	3317	114 2 50	3327	112 39 10	3338
13	Spica W.	76 14 51	3030	77 44 27	3037	79 13 54	3044	80 43 12	3051
	Saturn W.	33 4 34	3009	34 34 36	3015	36 4 30	3020	37 34 18	3026
	Antares W.	31 21 19	3235	32 46 46	3225	34 12 26	3217	35 38 15	3209
	Fomalhaut E.	58 36 52	3441	57 15 22	3463	55 54 17	3487	54 33 38	3512
	Jupiter E.	80 30 36	3090	79 2 14	3098	77 34 2	3105	76 5 59	3112
	Mars E.	83 9 34	3296	81 45 18	3304	80 21 11	3312	78 57 13	3319
	SUN E.	105 43 49	3386	104 21 16	3394	102 58 52	3401	101 36 37	3408
14	Saturn W.	45 1 43	3048	46 30 57	3051	48 0 7	3053	49 29 14	3056
	Antares W.	42 49 8	3186	44 15 34	3183	45 42 3	3181	47 8 35	3178
	Fomalhaut E.	47 57 35	3653	46 39 58	3687	45 22 57	3724	44 6 35	3763
	α Pegasi E.	62 6 28	3446	60 45 3	3461	59 23 55	3477	58 3 5	3494
	Jupiter E.	68 47 33	3138	67 20 10	3142	65 52 51	3146	64 25 37	3148
	Mars E.	71 59 14	3347	70 35 56	3351	69 12 43	3355	67 49 35	3357
	SUN E.	94 47 13	3437	93 25 38	3441	92 4 8	3445	90 42 42	3448
15	Saturn W.	56 54 17	3061	58 23 15	3060	59 52 14	3059	61 21 14	3057
	Antares W.	54 22 9	3163	55 49 3	3160	57 16 0	3156	58 43 2	3152
	α Pegasi E.	51 23 47	3589	50 5 1	3612	48 46 39	3636	47 28 44	3663
	Jupiter E.	57 10 5	3155	55 43 2	3155	54 15 59	3155	52 48 56	3153
	Mars E.	60 54 31	3365	59 31 34	3365	58 8 38	3364	56 45 40	3364
	SUN E.	83 56 13	3455	82 34 59	3455	81 13 45	3455	79 52 31	3454
16	Saturn W.	68 46 51	3043	70 16 10	3040	71 45 33	3035	73 15 2	3030
	Antares W.	65 59 26	3129	67 27 1	3124	68 54 42	3118	70 22 29	3111
	α Pegasi E.	41 7 6	3837	39 52 42	3883	38 39 5	3935	37 26 21	3993
	Jupiter E.	45 33 7	3141	44 5 47	3137	42 38 22	3133	41 10 52	3128
	Mars E.	49 50 24	3350	48 27 10	3346	47 3 52	3342	45 40 29	3337

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9	Fomalhaut E.	99 2 6	2971	97 31 17	2984	96 0 44	2997	94 30 28	3010
10	Regulus W.	99 4 48	2778	100 39 44	2792	102 14 22	2805	103 48 43	2820
	Spica W.	45 40 17	2821	47 14 17	2833	48 48 2	2845	50 21 32	2857
	α Aquilæ E.	55 17 28	3541	53 57 49	3587	52 39 0	3635	51 21 3	3686
	Fomalhaut E.	87 3 24	3083	85 34 54	3099	84 6 43	3114	82 38 50	3130
	Jupiter E.	110 43 39	2858	109 10 26	2873	107 37 32	2887	106 4 56	2901
	Mars E.	112 1 1	3052	110 31 53	3068	109 3 4	3082	107 34 32	3096
	SUN E.	133 59 46	3144	132 32 30	3158	131 5 31	3173	129 38 49	3188
11	Spica W.	58 5 10	2915	59 37 10	2927	61 8 55	2937	62 40 27	2949
	α Aquilæ E.	45 6 0	3999	43 54 19	4075	42 43 33	4158	41 34 47	4249
	Fomalhaut E.	75 24 20	3212	73 58 25	3230	72 32 52	3247	71 7 38	3265
	Jupiter E.	98 26 17	2966	96 55 22	2978	95 24 42	2991	93 54 18	3003
	Mars E.	100 16 15	3167	98 49 26	3179	97 22 51	3191	95 56 31	3204
	SUN E.	122 29 33	3255	121 4 29	3269	119 39 41	3281	118 15 7	3294
12	Spica W.	70 14 49	2998	71 45 5	3006	73 15 11	3014	74 45 6	3022
	Saturn W.	27 3 8	2984	28 33 41	2990	30 4 7	2997	31 34 24	3002
	Antares W.	25 42 37	3307	27 6 41	3282	28 31 13	3263	29 56 7	3248
	Fomalhaut E.	64 6 50	3359	62 43 46	3378	61 21 4	3399	59 58 46	3420
	Jupiter E.	86 25 46	3056	84 56 42	3065	83 27 49	3074	81 59 7	3082
	Mars E.	88 48 23	3259	87 23 24	3269	85 58 37	3278	84 34 0	3288
	SUN E.	111 15 43	3349	109 52 28	3359	108 29 24	3368	107 6 31	3378
13	Spica W.	82 12 22	3056	83 41 25	3061	85 10 22	3068	86 39 11	3075
	Saturn W.	39 3 59	3031	40 33 33	3035	42 3 2	3040	43 32 25	3044
	Antares W.	37 4 14	3203	38 30 19	3198	39 56 30	3194	41 22 47	3190
	Fomalhaut E.	53 13 27	3537	51 53 43	3564	50 34 29	3592	49 15 46	3622
	Jupiter E.	74 38 4	3118	73 10 16	3124	71 42 36	3129	70 15 1	3134
	Mars E.	77 33 23	3325	76 9 40	3331	74 46 5	3337	73 22 36	3343
	SUN E.	100 14 30	3415	98 52 31	3422	97 30 39	3427	96 8 53	3432
14	Saturn W.	50 58 18	3057	52 27 20	3059	53 56 20	3060	55 25 19	3061
	Antares W.	48 35 11	3174	50 1 51	3172	51 28 33	3169	52 55 19	3166
	Fomalhaut E.	42 50 54	3806	41 35 58	3853	40 21 50	3903	39 8 33	3958
	α Pegasi E.	56 42 34	3510	55 22 21	3528	54 2 28	3548	52 42 57	3568
	Jupiter E.	62 58 26	3151	61 31 18	3153	60 4 12	3154	58 37 8	3155
	Mars E.	66 26 29	3360	65 3 27	3362	63 40 27	3363	62 17 28	3365
	SUN E.	89 21 20	3450	88 0 0	3453	86 38 43	3454	85 17 27	3455
15	Saturn W.	62 50 16	3056	64 19 20	3053	65 48 27	3051	67 17 37	3048
	Antares W.	60 10 9	3148	61 37 20	3144	63 4 36	3139	64 31 59	3135
	α Pegasi E.	46 11 18	3692	44 54 22	3723	43 37 59	3758	42 21 13	3795
	Jupiter E.	51 21 51	3152	49 54 44	3150	48 27 35	3148	47 0 23	3144
	Mars E.	55 22 42	3362	53 59 42	3359	52 36 39	3357	51 13 33	3354
	SUN E.	78 31 15	3453	77 9 58	3450	75 48 38	3447	74 27 15	3445
16	Saturn W.	74 44 38	3025	76 14 20	3019	77 44 9	3013	79 14 6	3007
	Antares W.	71 50 25	3105	73 18 28	3099	74 46 39	3092	76 14 59	3084
	α Pegasi E.	36 14 35	4059	35 3 53	4133	33 54 23	4216	32 46 12	4311
	Jupiter E.	39 43 16	3123	38 15 34	3117	36 47 45	3110	35 19 48	3105
	Mars E.	44 17 0	3332	42 53 25	3326	41 29 43	3319	40 5 54	3313

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Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
16	SUN E.	73 5 49	3441	71 44 19	3437	70 22 45	3432	69 1 5	3428
17	Saturn W.	80 44 10	2999	82 14 24	2992	83 44 47	2985	85 15 19	2976
	Antares W.	77 43 28	3077	79 12 6	3069	80 40 54	3061	82 9 52	3052
	Jupiter E.	33 51 44	3098	32 23 32	3091	30 55 11	3083	29 26 40	3075
	Mars E.	38 41 58	3306	37 17 53	3299	35 53 40	3290	34 29 17	3282
	SUN E.	62 11 14	3397	60 48 54	3389	59 26 25	3382	58 3 48	3373
18	Saturn W.	92 50 41	2931	94 22 21	2921	95 54 13	2911	97 26 18	2901
	Antares W.	89 37 25	3006	91 7 30	2996	92 37 48	2985	94 8 19	2976
	α Aquilæ W.	46 34 53	3396	47 47 36	3879	49 1 18	3826	50 15 53	3776
	Mars E.	27 24 57	3238	25 59 33	3228	24 33 57	3219	23 8 11	3209
	SUN E.	51 8 12	3327	49 44 32	3318	48 20 41	3308	46 56 39	3298
19	Saturn W.	105 10 9	2845	106 43 39	2833	108 17 24	2821	109 51 24	2809
	Antares W.	101 44 8	2922	103 15 59	2912	104 48 3	2900	106 20 22	2889
	α Aquilæ W.	56 40 59	3566	58 0 10	3531	59 20 0	3498	60 40 27	3465
	SUN E.	39 53 23	3245	38 28 7	3233	37 2 37	3223	35 36 55	3213
24	SUN W.	21 30 3	2813	23 4 14	2794	24 38 50	2777	26 13 48	2762
	Pollux E.	57 0 36	2502	55 19 25	2498	53 38 9	2496	51 56 50	2493
	Regulus E.	92 32 12	2405	90 48 44	2397	89 5 5	2390	87 21 16	2382
25	SUN W.	34 13 3	2704	35 49 37	2696	37 26 22	2688	39 3 18	2681
	Pollux E.	43 29 57	2499	41 48 42	2504	40 7 35	2510	38 26 36	2519
	Regulus E.	78 39 45	2351	76 55 0	2346	75 10 8	2341	73 25 8	2336
26	SUN W.	47 10 15	2651	48 48 1	2646	50 25 54	2641	52 3 53	2637
	Pollux E.	30 6 1	2608	28 27 17	2640	26 49 17	2680	25 12 10	2729
	Regulus E.	64 38 32	2315	62 52 55	2313	61 7 14	2309	59 21 28	2306
	Spica E.	118 11 46	2344	116 26 51	2341	114 41 50	2336	112 56 43	2333
27	SUN W.	60 14 59	2622	61 53 25	2620	63 31 53	2618	65 10 23	2616
	Aldebaran W.	29 37 11	2295	31 23 18	2293	33 9 27	2292	34 55 38	2290
	Regulus E.	50 31 42	2296	48 45 36	2294	46 59 27	2293	45 13 17	2291
	Spica E.	104 9 59	2319	102 24 27	2317	100 38 52	2315	98 53 15	2313
28	SUN W.	73 23 27	2610	75 2 8	2610	76 40 49	2610	78 19 31	2610
	Aldebaran W.	43 46 59	2287	45 33 18	2287	47 19 37	2286	49 5 57	2287
	Venus W.	28 54 41	2787	30 29 26	2771	32 4 32	2757	33 39 57	2745
	Regulus E.	36 22 3	2288	34 35 46	2287	32 49 28	2288	31 3 11	2288
	Spica E.	90 4 42	2310	88 18 57	2309	86 33 11	2309	84 47 25	2309
29	SUN W.	86 32 56	2612	88 11 35	2612	89 50 13	2613	91 28 50	2615
	Aldebaran W.	57 57 30	2289	59 43 46	2289	61 30 1	2290	63 16 15	2291
	Venus W.	41 40 17	2706	43 16 49	2702	44 53 27	2698	46 30 10	2694
	Spica E.	75 58 45	2313	74 13 4	2315	72 27 26	2315	70 41 49	2317
	Saturn E.	118 11 4	2276	116 24 29	2277	114 37 56	2277	112 51 23	2278
30	SUN W.	99 41 22	2623	101 19 45	2626	102 58 5	2628	104 36 22	2631
	Aldebaran W.	72 6 55	2298	73 52 57	2301	75 38 55	2302	77 24 51	2302
	Venus W.	54 34 40	2685	56 11 40	2684	57 48 41	2684	59 25 42	2685
	Pollux W.	29 39 55	2569	31 19 33	2545	32 59 43	2525	34 40 22	2508
	Spica E.	61 54 29	2329	60 9 12	2332	58 23 59	2335	56 38 50	2339
	Saturn E.	103 59 4	2285	102 12 42	2286	100 26 22	2289	98 40 6	2291

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16	SUN E.	67 39 20	3423	66 17 29	3417	64 55 31	3411	63 33 27	3403
17	Saturn W.	86 46 2	2968	88 16 55	2960	89 47 58	2950	91 19 14	2941
	Antares W.	83 39 0	3043	85 8 19	3034	86 37 49	3025	88 7 31	3015
	Jupiter E.	27 58 0	3067	26 29 10	3059	25 0 10	3050	23 30 59	3041
	Mars E.	33 4 45	3275	31 40 4	3266	30 15 12	3257	28 50 10	3248
	SUN E.	56 41 1	3365	55 18 4	3356	53 54 57	3347	52 31 40	3338
18	Saturn W.	98 58 36	2890	100 31 8	2879	102 3 54	2868	103 36 54	2856
	Antares W.	95 39 2	2965	97 9 58	2954	98 41 8	2944	100 12 31	2933
	α Aquilæ W.	51 31 20	3729	52 47 37	3685	54 4 40	3643	55 22 28	3603
	Mars E.	21 42 13	3200	20 16 4	3191	18 49 44	3183	17 23 14	3173
	SUN E.	45 32 25	3287	44 7 58	3276	42 43 19	3265	41 18 27	3255
19	Saturn W.	111 25 40	2797	113 0 12	2785	114 34 59	2772	116 10 3	2760
	Antares W.	107 52 55	2878	109 25 42	2867	110 58 43	2856	112 31 58	2845
	α Aquilæ W.	62 1 30	3434	63 23 8	3405	64 45 19	3377	66 8 2	3351
	SUN E.	34 11 1	3203	32 44 55	3193	31 18 37	3183	29 52 7	3174
24	SUN W.	27 49 6	2748	29 24 43	2736	31 0 35	2725	32 36 42	2714
	Pollux E.	50 15 27	2492	48 34 3	2492	46 52 39	2493	45 11 16	2496
	Regulus E.	85 37 16	2576	83 53 7	2370	82 8 49	2363	80 24 21	2357
25	SUN W.	40 40 24	2674	42 17 39	2667	43 55 3	2661	45 32 35	2655
	Pollux E.	36 45 50	2530	35 5 19	2545	33 25 8	2562	31 45 20	2582
	Regulus E.	71 40 1	2332	69 54 48	2327	68 9 28	2324	66 24 3	2319
26	SUN W.	53 41 57	2634	55 20 6	2630	56 58 20	2627	58 36 38	2625
	Pollux E.	23 36 8	2790	22 1 27	2868	20 28 27	2969	18 57 35	3099
	Regulus E.	57 35 38	2304	55 49 44	2301	54 3 46	2300	52 17 46	2297
	Spica E.	111 11 31	2329	109 26 14	2326	107 40 53	2323	105 55 27	2322
27	SUN W.	66 48 57	2615	68 27 32	2613	70 6 9	2612	71 44 47	2611
	Aldebaran W.	36 41 52	2289	38 28 7	2289	40 14 23	2288	42 0 40	2287
	Regulus E.	43 27 4	2291	41 40 51	2290	39 54 36	2289	38 8 20	2288
	Spica E.	97 7 35	2313	95 21 54	2311	93 36 11	2311	91 50 27	2310
28	SUN W.	79 58 13	2610	81 36 54	2610	83 15 36	2611	84 54 16	2611
	Aldebaran W.	50 52 16	2287	52 38 35	2287	54 24 54	2287	56 11 12	2287
	Venus W.	35 15 37	2735	36 51 31	2726	38 27 37	2718	40 3 53	2712
	Regulus E.	29 16 54	2289	27 30 38	2289	25 44 22	2290	23 58 8	2291
	Spica E.	83 1 39	2310	81 15 54	2311	79 30 10	2311	77 44 27	2312
29	SUN W.	93 7 24	2616	94 45 57	2618	96 24 28	2620	98 2 56	2621
	Aldebaran W.	65 2 27	2293	66 48 37	2294	68 34 45	2295	70 20 52	2297
	Venus W.	48 6 58	2691	49 43 50	2689	51 20 44	2687	52 57 41	2686
	Spica E.	68 56 15	2319	67 10 44	2322	65 25 16	2324	63 39 51	2326
	Saturn E.	111 4 52	2279	109 18 22	2280	107 31 53	2282	105 45 27	2284
30	SUN W.	106 14 35	2633	107 52 45	2636	109 30 51	2640	111 8 52	2642
	Aldebaran W.	79 10 44	2307	80 56 33	2309	82 42 19	2312	84 28 1	2314
	Venus W.	61 2 42	2685	62 39 43	2686	64 16 42	2687	65 53 40	2688
	Pollux W.	36 21 24	2494	38 2 46	2482	39 44 25	2472	41 26 17	2464
	Spica E.	54 53 47	2342	53 8 49	2346	51 23 56	2351	49 39 10	2355
	Saturn E.	96 53 53	2292	95 7 42	2295	93 21 35	2298	91 35 32	2300

Day of the Month.	AIRY's Day Numbers— For correcting the Places of the Fixed Stars.					Mean Time of Transit of the First Point of Aries.
	At Mean Midnight,					
	Logarithms of				Value of L	
	E	F	G	H		
1	0.82557	1.31303	0.10835	1.51572	105.868	h m s 23 15 41.32
2	0.83026	1.30574	0.10892	1.51578	106.145	23 11 45.41
3	0.83524	1.29835	0.10949	1.51584	106.411	23 7 49.51
4	0.84049	1.29089	0.11007	1.51591	106.670	23 3 53.61
5	0.84600	1.28333	0.11065	1.51599	106.918	22 59 57.70
6	0.85177	1.27567	0.11123	1.51608	107.156	22 56 1.80
7	0.85778	1.26795	0.11182	1.51617	107.386	22 52 5.89
8	0.86402	1.26012	0.11241	1.51627	107.605	22 48 9.98
9	0.87047	1.25219	0.11301	1.51637	107.813	22 44 14.08
10	0.87710	1.24419	0.11361	1.51648	108.014	22 40 18.17
11	0.88393	1.23609	0.11422	1.51660	108.203	22 36 22.26
12	0.89093	1.22788	0.11484	1.51673	108.381	22 32 26.36
13	0.89809	1.21960	0.11547	1.51686	108.551	22 28 30.45
14	0.90541	1.21122	0.11610	1.51700	108.710	22 24 34.54
15	0.91288	1.20274	0.11674	1.51714	108.858	22 20 38.64
16	0.92046	1.19419	0.11738	1.51729	108.998	22 16 42.73
17	0.92815	1.18554	0.11803	1.51744	109.127	22 12 46.82
18	0.93595	1.17679	0.11869	1.51759	109.245	22 8 50.92
19	0.94383	1.16797	0.11935	1.51775	109.354	22 4 55.01
20	0.95180	1.15905	0.12002	1.51791	109.452	22 0 59.10
21	0.95985	1.15003	0.12071	1.51808	109.538	21 57 3.19
22	0.96796	1.14094	0.12140	1.51825	109.616	21 53 7.28
23	0.97613	1.13176	0.12210	1.51842	109.683	21 49 11.38
24	0.98435	1.12248	0.12280	1.51860	109.738	21 45 15.47
25	0.99260	1.11314	0.12351	1.51878	109.785	21 41 19.56
26	1.00088	1.10371	0.12423	1.51896	109.821	21 37 23.66
27	1.00920	1.09418	0.12497	1.51914	109.845	21 33 27.75
28	1.01752	1.08460	0.12570	1.51932	109.861	21 29 31.84
29	1.02585	1.07494	0.12644	1.51950	109.865	21 25 35.93
30	1.03419	1.06520	0.12720	1.51969	109.858	21 21 40.02
31	1.04252	1.05540	0.12796	1.51988	109.842	21 17 44.11

Day of the Month.	BESSEL'S Day Numbers— For correcting the Places of the Fixed Stars.				Days elapsed of the Julian Period at Mean Noon.	Mean Equinoctial Time, adding 0 ^d .269681.	From Mean Noon of January 1.	
	At Mean Midnight,						Day of the Year.	Fraction of the Year.*
	Logarithms of							
	A	B	C	D				
1	—1.2626	—0.6474	+8.9210	+0.8914	2403424	10	91	.2492
2	1.2609	0.6797	8.9296	0.8917	2403425	11	92	.2519
3	1.2591	0.7095	8.9382	0.8920	2403426	12	93	.2546
4	—1.2571	—0.7374	+8.9466	+0.8923	2403427	13	94	.2574
5	1.2549	0.7634	8.9550	0.8926	2403428	14	95	.2601
6	1.2527	0.7878	8.9633	0.8930	2403429	15	96	.2628
7	—1.2502	—0.8107	+8.9715	+0.8933	2403430	16	97	.2656
8	1.2477	0.8324	8.9796	0.8938	2403431	17	98	.2683
9	1.2450	0.8529	8.9877	0.8942	2403432	18	99	.2711
10	—1.2422	—0.8724	+8.9957	+0.8947	2403433	19	100	.2738
11	1.2392	0.8909	9.0036	0.8952	2403434	20	101	.2765
12	1.2361	0.9085	9.0116	0.8957	2403435	21	102	.2793
13	—1.2328	—0.9253	+9.0195	+0.8962	2403436	22	103	.2820
14	1.2294	0.9414	9.0273	0.8968	2403437	23	104	.2847
15	1.2258	0.9567	9.0350	0.8974	2403438	24	105	.2875
16	—1.2220	—0.9714	+9.0427	+0.8980	2403439	25	106	.2902
17	1.2181	0.9855	9.0503	0.8986	2403440	26	107	.2930
18	1.2141	0.9990	9.0580	0.8993	2403441	27	108	.2957
19	—1.2099	—1.0119	+9.0655	+0.8999	2403442	28	109	.2984
20	1.2055	1.0244	9.0731	0.9006	2403443	29	110	.3012
21	1.2009	1.0364	9.0807	0.9013	2403444	30	111	.3039
22	—1.1962	—1.0479	+9.0882	+0.9020	2403445	31	112	.3066
23	1.1913	1.0590	9.0957	0.9027	2403446	32	113	.3094
24	1.1862	1.0697	9.1031	0.9034	2403447	33	114	.3121
25	—1.1810	—1.0801	+9.1105	+0.9042	2403448	34	115	.3149
26	1.1755	1.0900	9.1179	0.9049	2403449	35	116	.3176
27	1.1699	1.0996	9.1252	0.9056	2403450	36	117	.3203
28	—1.1640	—1.1089	+9.1325	+0.9064	2403451	37	118	.3231
29	1.1580	1.1178	9.1398	0.9072	2403452	38	119	.3258
30	1.1517	1.1265	9.1470	0.9079	2403453	39	120	.3285
31	—1.1452	—1.1348	+9.1542	+0.9087	2403454	40	121	.3313

* Add .0012 if Fraction be required for the time *t*, see page 329.

* Add .0012 if Fraction be required for the time *t*, see page 329.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be subtracted from Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
		h m s	s	° ' "	"	m s	m s	s
Frid.	1	2 35 41.09	9.550	N.15 14 49.2	45.02	1 6.09	3 4.38	0.305
Sat.	2	2 39 30.56	9.572	15 32 42.0	44.38	1 6.17	3 11.44	0.283
Sun.	3	2 43 20.56	9.595	15 50 19.3	43.73	1 6.25	3 17.98	0.261
Mon.	4	2 47 11.10	9.618	16 7 40.8	43.06	1 6.33	3 23.98	0.239
Tues.	5	2 51 2.20	9.641	16 24 46.3	42.39	1 6.41	3 29.43	0.215
Wed.	6	2 54 53.86	9.664	16 41 35.4	41.70	1 6.49	3 34.31	0.191
Thur.	7	2 58 46.09	9.688	16 58 7.9	41.00	1 6.57	3 38.62	0.167
Frid.	8	3 2 38.90	9.713	17 14 23.5	40.29	1 6.65	3 42.36	0.143
Sat.	9	3 6 32.29	9.737	17 30 21.9	39.57	1 6.74	3 45.51	0.119
Sun.	10	3 10 26.26	9.761	17 46 2.8	38.83	1 6.82	3 48.09	0.095
Mon.	11	3 14 20.82	9.786	18 1 25.9	38.09	1 6.90	3 50.08	0.071
Tues.	12	3 18 15.98	9.810	18 16 31.0	37.33	1 6.98	3 51.48	0.046
Wed.	13	3 22 11.73	9.834	18 31 17.8	36.56	1 7.06	3 52.28	0.021
Thur.	14	3 26 8.06	9.859	18 45 45.9	35.78	1 7.15	3 52.50	0.003
Frid.	15	3 30 4.98	9.884	18 59 55.2	34.99	1 7.23	3 52.13	0.027
Sat.	16	3 34 2.49	9.909	19 13 45.3	34.18	1 7.31	3 51.18	0.052
Sun.	17	3 38 0.59	9.933	19 27 15.9	33.36	1 7.39	3 49.65	0.076
Mon.	18	3 41 59.25	9.956	19 40 26.7	32.54	1 7.47	3 47.55	0.100
Tues.	19	3 45 58.49	9.980	19 53 17.6	31.70	1 7.54	3 44.87	0.123
Wed.	20	3 49 58.29	10.003	20 5 48.2	30.85	1 7.62	3 41.63	0.146
Thur.	21	3 53 58.65	10.026	20 17 58.3	29.99	1 7.70	3 37.84	0.169
Frid.	22	3 57 59.54	10.048	20 29 47.7	29.12	1 7.77	3 33.51	0.191
Sat.	23	4 2 0.96	10.070	20 41 16.1	28.24	1 7.84	3 28.66	0.213
Sun.	24	4 6 2.89	10.091	20 52 23.2	27.35	1 7.92	3 23.30	0.234
Mon.	25	4 10 5.32	10.111	21 3 8.7	26.45	1 7.99	3 17.45	0.254
Tues.	26	4 14 8.22	10.130	21 13 32.5	25.54	1 8.06	3 11.13	0.273
Wed.	27	4 18 11.57	10.149	21 23 34.4	24.62	1 8.12	3 4.35	0.291
Thur.	28	4 22 15.38	10.168	21 33 14.1	23.69	1 8.19	2 57.12	0.310
Frid.	29	4 26 19.62	10.185	21 42 31.3	22.74	1 8.25	2 49.45	0.328
Sat.	30	4 30 24.27	10.202	21 51 25.8	21.80	1 8.31	2 41.37	0.345
Sun.	31	4 34 29.33	10.219	21 59 57.5	20.84	1 8.37	2 32.89	0.361
Mon.	32	4 38 34.79	10.235	N.22 8 6.2	19.87	1 8.43	2 24.03	0.377

* Mean Time of the Semidiameter passing may be found by subtracting 0.18 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be added to Mean Time.	Sidereal Time.
		Apparent Right Ascension.	Apparent Declination.	Semidiam.*		
		^h ^m ^s	[°] ['] ["]	['] ["]	^m ^s	^h ^m ^s
Frid.	1	2 35 41.58	N.15 14 51.5	15 53.9	3 4.40	2 38 45.98
Sat.	2	2 39 31.07	15 32 44.3	15 53.7	3 11.46	2 42 42.53
Sun.	3	2 43 21.09	15 50 21.7	15 53.4	3 18.00	2 46 39.09
Mon.	4	2 47 11.65	16 7 43.3	15 53.2	3 24.00	2 50 35.65
Tues.	5	2 51 2.77	16 24 48.8	15 53.0	3 29.44	2 54 32.21
Wed.	6	2 54 54.44	16 41 37.9	15 52.7	3 34.32	2 58 28.76
Thur.	7	2 58 46.68	16 58 10.4	15 52.5	3 38.63	3 2 25.31
Frid.	8	3 2 39.50	17 14 26.0	15 52.3	3 42.37	3 6 21.87
Sat.	9	3 6 32.90	17 30 24.4	15 52.1	3 45.52	3 10 18.42
Sun.	10	3 10 26.88	17 46 5.3	15 51.9	3 48.09	3 14 14.97
Mon.	11	3 14 21.45	18 1 28.4	15 51.7	3 50.08	3 18 11.53
Tues.	12	3 18 16.61	18 16 33.4	15 51.5	3 51.48	3 22 8.09
Wed.	13	3 22 12.36	18 31 20.1	15 51.3	3 52.28	3 26 4.64
Thur.	14	3 26 8.70	18 45 48.2	15 51.0	3 52.50	3 30 1.20
Frid.	15	3 30 5.62	18 59 57.4	15 50.8	3 52.13	3 33 57.75
Sat.	16	3 34 3.13	19 13 47.4	15 50.7	3 51.18	3 37 54.31
Sun.	17	3 38 1.22	19 27 18.0	15 50.5	3 49.65	3 41 50.87
Mon.	18	3 41 59.88	19 40 28.8	15 50.3	3 47.54	3 45 47.42
Tues.	19	3 45 59.11	19 53 19.6	15 50.1	3 44.86	3 49 43.97
Wed.	20	3 49 58.91	20 5 50.1	15 49.9	3 41.62	3 53 40.53
Thur.	21	3 53 59.26	20 18 0.1	15 49.7	3 37.83	3 57 37.09
Frid.	22	3 58 0.14	20 29 49.4	15 49.5	3 33.50	4 1 33.64
Sat.	23	4 2 1.54	20 41 17.7	15 49.4	3 28.65	4 5 30.19
Sun.	24	4 6 3.46	20 52 24.7	15 49.2	3 23.29	4 9 26.75
Mon.	25	4 10 5.87	21 3 10.2	15 49.0	3 17.44	4 13 23.31
Tues.	26	4 14 8.75	21 13 33.9	15 48.8	3 11.12	4 17 19.87
Wed.	27	4 18 12.09	21 23 35.7	15 48.6	3 4.33	4 21 16.42
Thur.	28	4 22 15.88	21 33 15.2	15 48.5	2 57.10	4 25 12.98
Frid.	29	4 26 20.10	21 42 32.3	15 48.4	2 49.43	4 29 9.53
Sat.	30	4 30 24.73	21 51 26.8	15 48.3	2 41.35	4 33 6.08
Sun.	31	4 34 29.77	21 59 58.4	15 48.2	2 32.87	4 37 2.64
Mon.	32	4 38 35.19	N.22 8 7.0	15 48.1	2 24.01	4 40 59.20

* The Semidiameter for Apparent Noon may be assumed the same as that for Mean Noon.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	41° 21' 26".9	N. 0° 13'	0.0035952	16' 7".2	16' 5".4	59' 3".4	58' 57".1
2	42 19 34.8	0° 28'	0.0035992	16 3.4	16 1.0	58 49.5	58 40.7
3	43 17 40.8	0° 41'	0.0038024	15 58.2	15 55.1	58 30.7	58 19.4
4	44 15 44.9	0° 53'	0.0039049	15 51.7	15 47.9	58 6.8	57 53.0
5	45 13 47.1	0° 61'	0.0040069	15 43.9	15 39.6	57 38.2	57 22.4
6	46 11 47.6	0° 67'	0.0041082	15 35.1	15 30.4	57 5.8	56 48.7
7	47 9 46.6	0° 71'	0.0042089	15 25.6	15 20.9	56 31.3	56 13.8
8	48 7 44.0	0° 71'	0.0043089	15 16.1	15 11.6	55 56.5	55 39.7
9	49 5 40.0	0° 70'	0.0044082	15 7.2	15 3.2	55 23.7	55 8.9
10	50 3 34.6	0° 65'	0.0045067	14 59.4	14 56.1	54 55.3	54 43.4
11	51 1 27.8	0° 59'	0.0046041	14 53.4	14 51.2	54 33.2	54 25.1
12	51 59 19.8	0° 50'	0.0047005	14 49.6	14 48.6	54 19.2	54 15.6
13	52 57 10.4	0° 40'	0.0047958	14 48.3	14 48.7	54 14.5	54 15.9
14	53 54 59.8	0° 30'	0.0048899	14 49.8	14 51.5	54 19.9	54 26.4
15	54 52 48.0	0° 18'	0.0049825	14 54.0	14 57.2	54 35.5	54 47.1
16	55 50 35.0	N. 0° 07'	0.0050734	15 1.0	15 5.4	55 1.0	55 17.1
17	56 48 20.8	S. 0° 04'	0.0051627	15 10.3	15 15.7	55 35.2	55 55.0
18	57 46 5.5	0° 14'	0.0052502	15 21.5	15 27.6	56 16.3	56 38.5
19	58 43 49.1	0° 23'	0.0053358	15 33.9	15 40.2	57 1.5	57 24.7
20	59 41 31.6	0° 30'	0.0054193	15 46.5	15 52.5	57 47.6	58 9.8
21	60 39 12.9	0° 33'	0.0055007	15 58.3	16 3.6	58 30.9	58 50.3
22	61 36 53.0	0° 35'	0.0055798	16 8.3	16 12.4	59 7.6	59 22.6
23	62 34 31.9	0° 31'	0.0056567	16 15.8	16 18.3	59 34.9	59 44.4
24	63 32 9.5	0° 26'	0.0057314	16 20.1	16 21.1	59 50.9	59 54.5
25	64 29 45.8	0° 17'	0.0058038	16 21.3	16 20.8	59 55.2	59 53.3
26	65 27 20.6	S. 0° 04'	0.0058740	16 19.6	16 17.8	59 48.9	59 42.3
27	66 24 54.0	N. 0° 09'	0.0059420	16 15.5	16 12.7	59 33.8	59 23.8
28	67 22 26.0	0° 22'	0.0060081	16 9.6	16 6.2	59 12.4	59 0.0
29	68 19 56.5	0° 36'	0.0060725	16 2.6	15 58.8	58 46.8	58 32.9
30	69 17 25.6	0° 48'	0.0061351	15 54.9	15 51.0	58 18.7	58 4.1
31	70 14 53.4	0° 60'	0.0061961	15 46.9	15 42.9	57 49.3	57 34.4
32	71 12 19.9	N. 0° 68'	0.0062558	15 38.8	15 34.7	57 19.4	57 4.4

MEAN TIME.

THE MOON'S

Day of the Week.	Day of the Month.	THE MOON'S							
		Longitude.		Latitude.		Age.	Meridian		
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.		
Frid.	1	154° 8' 16".7	161° 8' 29".7	N. 0° 8' 23".4	N. 0° 45' 30".9	8.7	8 h 2.5 m		
Sat.	2	168° 7' 30".4	175° 5' 8".4	1 21 49.0	1 56 44.2	9.7	8 54.0		
Sun.	3	182° 1' 11".1	188° 55' 24".2	2 29 45.2	3 0 22.7	10.7	9 44.4		
Mon.	4	195° 47' 30".6	202° 37' 12".0	3 28 10.9	3 52 47.4	11.7	10 34.0		
Tues.	5	209° 24' 8".9	216° 8' 1".9	4 13 53.9	4 31 16.2	12.7	11 23.6		
Wed.	6	222° 48' 32".3	229° 25' 23".2	4 44 44.9	4 54 14.8	13.7	12 13.3		
Thur.	7	235° 58' 20".3	242° 27' 13".1	4 59 44.7	5 1 17.6	14.7	13 3.2		
Frid.	8	248° 51' 55".0	255° 12' 24".6	4 58 59.8	4 53 0.1	15.7	13 53.5		
Sat.	9	261° 28' 44".9	267° 41' 4".2	4 43 30.4	4 30 43.5	16.7	14 43.4		
Sun.	10	273° 49' 36".7	279° 54' 40".0	4 14 54.2	3 56 17.8	17.7	15 32.6		
Mon.	11	285° 56' 37".2	291° 55' 55".2	3 35 10.3	3 11 47.7	18.7	16 20.8		
Tues.	12	297° 53' 4.5	303° 48' 39".3	2 46 26.1	2 19 21.6	19.7	17 7.7		
Wed.	13	309° 43' 15".7	315° 37' 32".3	1 50 50.4	1 21 8.3	20.7	17 53.4		
Thur.	14	321° 32' 9".3	327° 27' 47".5	N. 0 50 31.5	N. 0 19 16.3	21.7	18 38.1		
Frid.	15	333° 25' 8".3	339° 24' 52".7	S. 0 12 20.1	S. 0 44 0.6	22.7	19 22.3		
Sat.	16	345° 27' 40".8	351° 34' 10".7	1 15 26.4	1 46 18.3	23.7	20 6.5		
Sun.	17	357° 44' 58".1	4 0 34.8	2 16 15.5	2 44 56.0	24.7	20 51.5		
Mon.	18	10 21 28.5	16 48 0.6	3 11 56.6	3 36 53.0	25.7	21 38.0		
Tues.	19	23 20 26.5	29 58 53.6	3 59 20.4	4 18 53.5	26.7	22 26.8		
Wed.	20	36 43 21.4	43 33 40.2	4 35 7.6	4 47 39.3	27.7	23 18.5		
Thur.	21	50 29 31.4	57 30 27.8	4 56 7.8	5 0 15.4	28.7	6		
Frid.	22	64 35 54.1	71 45 8.8	4 59 49.0	4 54 41.1	0.2	0 13.3		
Sat.	23	78 57 24.6	86 11 52.0	4 44 50.2	4 30 21.6	1.2	1 10.9		
Sun.	24	93 27 40.0	100 43 59.5	4 11 27.2	3 48 25.3	2.2	2 10.4		
Mon.	25	108 0 4.0	115 15 12.5	3 21 40.0	2 51 40.4	3.2	3 10.3		
Tues.	26	122 28 49.6	129 40 26.4	2 18 59.3	1 44 11.9	4.2	4 9.2		
Wed.	27	136 49 40.9	143 56 17.4	S. 1 7 55.6	S. 0 30 47.4	5.2	5 5.8		
Thur.	28	151 0 5.7	158 1 0.3	N. 0 6 35.5	N. 0 43 37.6	6.2	5 59.9		
Frid.	29	164 58 59.3	171 54 3.5	1 19 44.9	1 54 25.8	7.2	6 51.7		
Sat.	30	178 46 14.9	185 35 36.0	2 27 11.4	2 57 35.3	8.2	7 41.6		
Sun.	31	192 22 9.2	199 5 55.6	3 25 14.6	3 49 49.3	9.2	8 30.5		
Mon.	32	205 46 55.5	212 25 7.5	N. 4 11 2.9	N. 4 28 42.2	10.2	9 18.9		

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 1.				SUNDAY 3.			
0	h m s 10 24 18.42	N. 10 7 42.2	98.57	0	h m s 12 11 23.03	N. 1 29 10.2	113.14
1	10 26 35.65	9 57 49.0	99.15	1	12 13 34.11	1 17 51.2	113.17
2	10 28 52.71	9 47 52.4	99.71	2	12 15 45.11	1 6 32.1	113.19
3	10 31 9.60	9 37 52.5	100.25	3	12 17 56.04	0 55 12.9	113.20
4	10 33 26.32	9 27 49.4	100.78	4	12 20 6.89	0 43 53.7	113.20
5	10 35 42.88	9 17 43.1	101.31	5	12 22 17.67	0 32 34.5	113.18
6	10 37 59.28	9 7 33.7	101.83	6	12 24 28.38	0 21 15.5	113.16
7	10 40 15.51	8 57 21.2	102.33	7	12 26 39.03	N. 0 9 56.6	113.13
8	10 42 31.58	8 47 5.8	102.81	8	12 28 49.61	S. 0 1 22.1	113.08
9	10 44 47.49	8 36 47.5	103.29	9	12 31 0.12	0 12 40.4	113.02
10	10 47 3.25	8 26 26.3	103.76	10	12 33 10.58	0 23 58.3	112.95
11	10 49 18.85	8 16 2.4	104.22	11	12 35 20.98	0 35 15.8	112.87
12	10 51 34.29	8 5 35.7	104.67	12	12 37 31.33	0 46 32.8	112.78
13	10 53 49.58	7 55 6.4	105.09	13	12 39 41.62	0 57 49.2	112.68
14	10 56 4.72	7 44 34.6	105.51	14	12 41 51.86	1 9 5.0	112.57
15	10 58 19.71	7 34 0.3	105.93	15	12 44 2.05	1 20 20.1	112.45
16	11 0 34.55	7 23 23.5	106.33	16	12 46 12.19	1 31 34.4	112.32
17	11 2 49.24	7 12 44.4	106.71	17	12 48 22.29	1 42 47.9	112.18
18	11 5 3.79	7 2 3.0	107.08	18	12 50 32.34	1 54 0.5	112.02
19	11 7 18.20	6 51 19.4	107.45	19	12 52 42.35	2 5 12.1	111.86
20	11 9 32.47	6 40 33.6	107.81	20	12 54 52.32	2 16 22.8	111.69
21	11 11 46.60	6 29 45.7	108.15	21	12 57 2.25	2 27 32.4	111.50
22	11 14 0.59	6 18 55.8	108.48	22	12 59 12.14	2 38 40.8	111.31
23	11 16 14.45	N. 6 8 3.9	108.81	23	13 1 22.00	S. 2 49 48.1	111.11
SATURDAY 2.				MONDAY 4.			
0	11 18 28.17	N. 5 57 10.1	109.12	0	13 3 31.83	S. 3 0 54.1	110.89
1	11 20 41.76	5 46 14.5	109.41	1	13 5 41.63	3 11 58.8	110.66
2	11 22 55.23	5 35 17.2	109.69	2	13 7 51.40	3 23 2.0	110.42
3	11 25 8.57	5 24 18.2	109.97	3	13 10 1.15	3 34 3.8	110.18
4	11 27 21.78	5 13 17.6	110.23	4	13 12 10.87	3 45 4.1	109.93
5	11 29 34.87	5 2 15.4	110.48	5	13 14 20.57	3 56 2.9	109.67
6	11 31 47.85	4 51 11.8	110.73	6	13 16 30.24	4 7 0.1	109.38
7	11 34 0.70	4 40 6.7	110.96	7	13 18 39.90	4 17 55.5	109.09
8	11 36 13.43	4 29 0.3	111.18	8	13 20 49.54	4 28 49.2	108.80
9	11 38 26.05	4 17 52.6	111.38	9	13 22 59.17	4 39 41.1	108.50
10	11 40 38.56	4 6 43.7	111.58	10	13 25 8.78	4 50 31.2	108.18
11	11 42 50.95	3 55 33.6	111.77	11	13 27 18.38	5 1 19.3	107.85
12	11 45 3.24	3 44 22.5	111.93	12	13 29 27.96	5 12 5.4	107.52
13	11 47 15.42	3 33 10.4	112.09	13	13 31 37.54	5 22 49.5	107.18
14	11 49 27.50	3 21 57.4	112.24	14	13 33 47.11	5 33 31.5	106.82
15	11 51 39.47	3 10 43.5	112.38	15	13 35 56.67	5 44 11.3	106.45
16	11 53 51.35	2 59 28.8	112.51	16	13 38 6.23	5 54 48.9	106.07
17	11 56 3.13	2 48 13.4	112.63	17	13 40 15.79	6 5 24.2	105.69
18	11 58 14.81	2 36 57.3	112.73	18	13 42 25.35	6 15 57.2	105.31
19	12 0 26.40	2 25 40.6	112.83	19	13 44 34.91	6 26 27.9	104.91
20	12 2 37.90	2 14 23.3	112.92	20	13 46 44.46	6 36 56.1	104.49
21	12 4 49.31	2 3 5.6	112.99	21	13 48 54.02	6 47 21.8	104.07
22	12 7 0.64	1 51 47.4	113.05	22	13 51 3.59	6 57 44.9	103.63
23	12 9 11.88	1 40 28.9	113.10	23	13 53 13.16	7 8 5.4	103.20
24	12 11 23.03	N. 1 29 10.2	113.14	24	13 55 22.73	S. 7 18 23.3	102.75

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
TUESDAY 5.				THURSDAY 7.			
0	h m s 13 55 22.73	S. 7 18 23.3	102.75	0	h m s 15 39 26.77	S. 14 24 6.5	71.78
1	13 57 32.32	7 28 38.4	102.29	1	15 41 37.50	14 31 14.8	70.97
2	13 59 41.91	7 38 50.8	101.83	2	15 43 48.25	14 38 18.2	70.15
3	14 1 51.52	7 49 0.3	101.35	3	15 45 59.02	14 45 16.7	69.33
4	14 4 1.14	7 59 7.0	100.87	4	15 48 9.82	14 52 10.2	68.51
5	14 6 10.77	8 9 10.8	100.38	5	15 50 20.64	14 58 58.8	67.68
6	14 8 20.42	8 19 11.5	99.87	6	15 52 31.48	15 5 42.4	66.84
7	14 10 30.08	8 29 9.2	99.36	7	15 54 42.34	15 12 20.9	66.00
8	14 12 39.75	8 39 3.8	98.84	8	15 56 53.21	15 18 54.4	65.16
9	14 14 49.44	8 48 55.3	98.32	9	15 59 4.11	15 25 22.8	64.31
10	14 16 59.15	8 58 43.6	97.78	10	16 1 15.02	15 31 46.1	63.45
11	14 19 8.88	9 8 28.7	97.23	11	16 3 25.95	15 38 4.2	62.59
12	14 21 18.63	9 18 10.4	96.67	12	16 5 36.90	15 44 17.2	61.73
13	14 23 28.40	9 27 48.8	96.12	13	16 7 47.86	15 50 25.0	60.86
14	14 25 38.19	9 37 23.8	95.55	14	16 9 58.83	15 56 27.5	59.98
15	14 27 48.00	9 46 55.4	94.97	15	16 12 9.82	16 2 24.8	59.11
16	14 29 57.84	9 56 23.4	94.38	16	16 14 20.81	16 8 16.9	58.23
17	14 32 7.69	10 5 47.9	93.79	17	16 16 31.82	16 14 3.6	57.35
18	14 34 17.57	10 15 8.9	93.19	18	16 18 42.83	16 19 45.1	56.47
19	14 36 27.48	10 24 26.2	92.58	19	16 20 53.85	16 25 21.2	55.57
20	14 38 37.41	10 33 39.8	91.95	20	16 23 4.88	16 30 51.9	54.68
21	14 40 47.37	10 42 49.6	91.33	21	16 25 15.91	16 36 17.3	53.78
22	14 42 57.35	10 51 55.7	90.70	22	16 27 26.95	16 41 37.3	52.88
23	14 45 7.36	S. 11 0 58.0	90.05	23	16 29 37.99	S. 16 46 51.8	51.98
WEDNESDAY 6.				FRIDAY 8.			
0	14 47 17.40	S. 11 9 56.3	89.40	0	16 31 49.03	S. 16 52 1.0	51.08
1	14 49 27.47	11 18 50.8	88.75	1	16 34 0.07	16 57 4.7	50.17
2	14 51 37.56	11 27 41.3	88.08	2	16 36 11.11	17 2 3.0	49.25
3	14 53 47.68	11 36 27.8	87.41	3	16 38 22.15	17 6 55.7	48.33
4	14 55 57.83	11 45 10.2	86.73	4	16 40 33.18	17 11 43.0	47.42
5	14 58 8.01	11 53 48.6	86.05	5	16 42 44.21	17 16 24.7	46.49
6	15 0 18.21	12 2 22.8	85.35	6	16 44 55.23	17 21 0.9	45.57
7	15 2 28.45	12 10 52.9	84.66	7	16 47 6.24	17 25 31.5	44.64
8	15 4 38.72	12 19 18.7	83.96	8	16 49 17.24	17 29 56.6	43.72
9	15 6 49.01	12 27 40.3	83.24	9	16 51 28.22	17 34 16.1	42.78
10	15 8 59.33	12 35 57.6	82.52	10	16 53 39.20	17 38 30.0	41.84
11	15 11 9.68	12 44 10.5	81.78	11	16 55 50.16	17 42 38.2	40.91
12	15 13 20.06	12 52 19.0	81.05	12	16 58 1.10	17 46 40.9	39.98
13	15 15 30.47	13 0 23.1	80.32	13	17 0 12.02	17 50 37.9	39.03
14	15 17 40.90	13 8 22.8	79.58	14	17 2 22.93	17 54 29.3	38.10
15	15 19 51.37	13 16 18.0	78.83	15	17 4 33.81	17 58 15.1	37.16
16	15 22 1.86	13 24 8.7	78.07	16	17 6 44.67	18 1 55.2	36.21
17	15 24 12.38	13 31 54.8	77.30	17	17 8 55.50	18 5 29.6	35.27
18	15 26 22.93	13 39 36.3	76.53	18	17 11 6.31	18 8 58.4	34.33
19	15 28 33.50	13 47 13.1	75.75	19	17 13 17.09	18 12 21.5	33.38
20	15 30 44.11	13 54 45.3	74.97	20	17 15 27.84	18 15 38.9	32.43
21	15 32 54.74	14 2 12.7	74.18	21	17 17 38.56	18 18 50.6	31.48
22	15 35 5.39	14 9 35.4	73.39	22	17 19 49.24	18 21 56.6	30.53
23	15 37 16.07	14 16 53.4	72.59	23	17 21 59.89	18 24 56.9	29.57
24	15 39 26.77	S. 14 24 6.5	71.78	24	17 24 10.50	S. 18 27 51.4	28.62

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 9.				MONDAY 11.			
0	h m s	S. ° ' "	"	0	h m s	S. ° ' "	"
0	17 24 10.50	S. 18 27 51.4	28.62	0	19 7 23.70	S. 18 56 22.6	16.21
1	17 26 21.07	18 30 40.3	27.68	1	19 9 30.52	18 54 42.7	17.09
2	17 28 31.61	18 33 23.5	26.72	2	19 11 37.22	18 52 57.5	17.97
3	17 30 42.10	18 36 0.9	25.77	3	19 13 43.81	18 51 7.0	18.86
4	17 32 52.54	18 38 32.7	24.82	4	19 15 50.29	18 49 11.2	19.73
5	17 35 2.94	18 40 58.7	23.86	5	19 17 56.65	18 47 10.2	20.61
6	17 37 13.30	18 43 19.0	22.91	6	19 20 2.90	18 45 4.0	21.48
7	17 39 23.61	18 45 33.6	21.95	7	19 22 9.04	18 42 52.5	22.34
8	17 41 33.86	18 47 42.4	20.99	8	19 24 15.06	18 40 35.9	23.20
9	17 43 44.06	18 49 45.5	20.04	9	19 26 20.96	18 38 14.1	24.06
10	17 45 54.21	18 51 42.9	19.08	10	19 28 26.74	18 35 47.2	24.92
11	17 48 4.30	18 53 34.5	18.13	11	19 30 32.41	18 33 15.1	25.78
12	17 50 14.34	18 55 20.4	17.18	12	19 32 37.95	18 30 37.9	26.63
13	17 52 24.32	18 57 0.6	16.23	13	19 34 43.38	18 27 55.6	27.47
14	17 54 34.24	18 58 35.2	15.29	14	19 36 48.69	18 25 8.3	28.31
15	17 56 44.09	19 0 4.0	14.33	15	19 38 53.87	18 22 15.9	29.16
16	17 58 53.88	19 1 27.1	13.38	16	19 40 58.94	18 19 18.4	29.99
17	18 1 3.60	19 2 44.5	12.43	17	19 43 3.89	18 16 16.0	30.82
18	18 3 13.26	19 3 56.2	11.47	18	19 45 8.72	18 13 8.6	31.65
19	18 5 22.84	19 5 2.2	10.52	19	19 47 13.42	18 9 56.2	32.48
20	18 7 32.36	19 6 2.5	9.58	20	19 49 18.00	18 6 38.9	33.29
21	18 9 41.80	19 6 57.2	8.64	21	19 51 22.46	18 3 16.7	34.11
22	18 11 51.17	19 7 46.2	7.69	22	19 53 26.80	17 59 49.6	34.92
23	18 14 0.46	S. 19 8 29.5	6.74	23	19 55 31.01	S. 17 56 17.7	35.73
SUNDAY 10.				TUESDAY 12.			
0	h m s	S. ° ' "	"	0	h m s	S. ° ' "	"
0	18 16 9.67	S. 19 9 7.1	5.80	0	19 57 35.09	S. 17 52 40.9	36.53
1	18 18 18.81	19 9 39.1	4.87	1	19 59 39.06	17 48 59.3	37.34
2	18 20 27.86	19 10 5.5	3.93	2	20 1 42.90	17 45 12.8	38.14
3	18 22 36.83	19 10 26.3	2.99	3	20 3 46.62	17 41 21.6	38.93
4	18 24 45.72	19 10 41.4	2.05	4	20 5 50.22	17 37 25.6	39.73
5	18 26 54.52	19 10 50.9	1.12	5	20 7 53.70	17 33 24.9	40.51
6	18 29 3.23	19 10 54.8	0.19	6	20 9 57.05	17 29 19.5	41.29
7	18 31 11.86	19 10 53.2	0.74	7	20 12 0.28	17 25 9.4	42.07
8	18 33 20.39	19 10 45.9	1.68	8	20 14 3.38	17 20 54.7	42.84
9	18 35 28.84	19 10 33.1	2.60	9	20 16 6.36	17 16 35.3	43.62
10	18 37 37.19	19 10 14.7	3.52	10	20 18 9.22	17 12 11.3	44.38
11	18 39 45.45	19 9 50.8	4.43	11	20 20 11.96	17 7 42.7	45.15
12	18 41 53.61	19 9 21.4	5.36	12	20 22 14.57	17 3 9.5	45.91
13	18 44 1.68	19 8 46.5	6.28	13	20 24 17.06	16 58 31.8	46.66
14	18 46 9.65	19 8 6.0	7.20	14	20 26 19.44	16 53 49.6	47.41
15	18 48 17.52	19 7 20.1	8.11	15	20 28 21.69	16 49 2.9	48.16
16	18 50 25.29	19 6 28.7	9.02	16	20 30 23.82	16 44 11.7	48.90
17	18 52 32.96	19 5 31.9	9.93	17	20 32 25.83	16 39 16.1	49.63
18	18 54 40.53	19 4 29.6	10.83	18	20 34 27.72	16 34 16.1	50.37
19	18 56 47.99	19 3 21.9	11.73	19	20 36 29.49	16 29 11.7	51.09
20	18 58 55.35	19 2 8.8	12.63	20	20 38 31.15	16 24 3.0	51.82
21	19 1 2.60	19 0 50.3	13.53	21	20 40 32.68	16 18 49.9	52.54
22	19 3 9.74	18 59 26.4	14.43	22	20 42 34.10	16 13 32.5	53.26
23	19 5 16.78	18 57 57.2	15.32	23	20 44 35.40	16 8 10.8	53.97
24	19 7 23.70	S. 18 56 22.6	16.21	24	20 46 36.59	S. 16 2 44.9	54.68

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 13.				FRIDAY 15.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	20 46 36.59	S. 16 2 44.9	54.68	0	22 21 40.81	S. 10 27 2.0	83.49
1	20 48 37.66	15 57 14.7	55.38	1	22 23 37.93	10 18 39.6	83.98
2	20 50 38.62	15 51 40.3	56.08	2	22 25 35.01	10 10 14.2	84.47
3	20 52 39.47	15 46 1.7	56.78	3	22 27 32.06	10 1 46.0	84.94
4	20 54 40.21	15 40 19.0	57.46	4	22 29 29.08	9 53 14.9	85.42
5	20 56 40.83	15 34 32.2	58.15	5	22 31 26.06	9 44 41.0	85.89
6	20 58 41.35	15 28 41.2	58.83	6	22 33 23.01	9 36 4.2	86.36
7	21 0 41.75	15 22 46.2	59.51	7	22 35 19.94	9 27 24.7	86.82
8	21 2 42.05	15 16 47.1	60.17	8	22 37 16.84	9 18 42.4	87.28
9	21 4 42.24	15 10 44.0	60.85	9	22 39 13.72	9 9 57.4	87.73
10	21 6 42.32	15 4 36.9	61.52	10	22 41 10.58	9 1 9.7	88.17
11	21 8 42.30	14 58 25.8	62.18	11	22 43 7.42	8 52 19.4	88.61
12	21 10 42.17	14 52 10.7	62.84	12	22 45 4.25	8 43 26.4	89.05
13	21 12 41.94	14 45 51.7	63.49	13	22 47 1.06	8 34 30.8	89.48
14	21 14 41.61	14 39 28.8	64.13	14	22 48 57.87	8 25 32.6	89.91
15	21 16 41.18	14 33 2.1	64.78	15	22 50 54.66	8 16 31.9	90.33
16	21 18 40.65	14 26 31.5	65.43	16	22 52 51.45	8 7 28.6	90.75
17	21 20 40.03	14 19 57.0	66.06	17	22 54 48.24	7 58 22.9	91.16
18	21 22 39.31	14 13 18.8	66.68	18	22 56 45.02	7 49 14.7	91.57
19	21 24 38.49	14 6 36.8	67.31	19	22 58 41.81	7 40 4.1	91.97
20	21 26 37.58	13 59 51.1	67.93	20	23 0 38.61	7 30 51.1	92.36
21	21 28 36.58	13 53 1.7	68.54	21	23 2 35.41	7 21 35.8	92.75
22	21 30 35.49	13 46 8.6	69.16	22	23 4 32.22	7 12 18.1	93.14
23	21 32 34.31	S. 13 39 11.8	69.77	23	23 6 29.04	S. 7 2 58.1	93.53
THURSDAY 14.				SATURDAY 16.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	21 34 33.04	S. 13 32 11.4	70.37	0	23 8 25.88	S. 6 53 35.8	93.90
1	21 36 31.69	13 25 7.4	70.97	1	23 10 22.74	6 44 11.3	94.27
2	21 38 30.25	13 17 59.8	71.56	2	23 12 19.61	6 34 44.6	94.63
3	21 40 28.73	13 10 48.7	72.15	3	23 14 16.51	6 25 15.7	95.00
4	21 42 27.12	13 3 34.0	72.74	4	23 16 13.44	6 15 44.6	95.35
5	21 44 25.44	12 56 15.8	73.32	5	23 18 10.39	6 6 11.5	95.69
6	21 46 23.68	12 48 54.2	73.89	6	23 20 7.37	5 56 36.3	96.04
7	21 48 21.85	12 41 29.1	74.47	7	23 22 4.39	5 46 59.0	96.38
8	21 50 19.94	12 34 0.6	75.03	8	23 24 1.44	5 37 19.7	96.72
9	21 52 17.95	12 26 28.7	75.59	9	23 25 58.54	5 27 38.4	97.04
10	21 54 15.90	12 18 53.5	76.15	10	23 27 55.67	5 17 55.2	97.36
11	21 56 13.78	12 11 14.9	76.71	11	23 29 52.85	5 8 10.0	97.68
12	21 58 11.59	12 3 33.0	77.26	12	23 31 50.07	4 58 23.0	98.00
13	22 0 9.34	11 55 47.8	77.80	13	23 33 47.35	4 48 34.1	98.30
14	22 2 7.02	11 47 59.4	78.34	14	23 35 44.68	4 38 43.4	98.60
15	22 4 4.64	11 40 7.7	78.88	15	23 37 42.06	4 28 50.9	98.89
16	22 6 2.20	11 32 12.8	79.41	16	23 39 39.50	4 18 56.7	99.18
17	22 7 59.71	11 24 14.8	79.93	17	23 41 37.01	4 9 0.7	99.47
18	22 9 57.16	11 16 13.6	80.46	18	23 43 34.58	3 59 3.1	99.74
19	22 11 54.55	11 8 9.3	80.99	19	23 45 32.21	3 49 3.8	100.02
20	22 13 51.90	11 0 1.9	81.50	20	23 47 29.92	3 39 2.9	100.28
21	22 15 49.20	10 51 51.5	81.99	21	23 49 27.70	3 29 0.5	100.53
22	22 17 46.45	10 43 38.0	82.50	22	23 51 25.55	3 18 56.6	100.78
23	22 19 43.65	10 35 21.5	83.00	23	23 53 23.48	3 8 51.1	101.03
24	22 21 40.81	S. 10 27 2.0	83.49	24	23 55 21.49	S. 2 58 44.2	101.27

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SUNDAY 17.				TUESDAY 19.			
0	h m s	° ' "	"	0	h m s	N. ° ' "	"
1	23 55 21.49	S. 2 58 44.2	101.27	1	1 32 18.78	N. 5 21 52.4	104.32
2	23 57 19.59	2 48 35.9	101.51	2	1 34 24.33	5 32 17.9	104.18
3	23 59 17.77	2 38 26.1	101.74	3	1 36 30.11	5 42 42.5	104.03
4	0 1 16.04	2 28 15.0	101.95	4	1 38 36.11	5 53 6.2	103.87
5	0 3 14.40	2 18 2.7	102.17	5	1 40 42.34	6 3 28.9	103.69
6	0 5 12.86	2 7 49.0	102.38	6	1 42 48.81	6 13 50.5	103.51
7	0 7 11.43	1 57 34.1	102.58	7	1 44 55.51	6 24 11.0	103.32
8	0 9 10.09	1 47 18.0	102.78	8	1 47 2.44	6 34 30.3	103.12
9	0 11 8.85	1 37 0.8	102.96	9	1 49 9.61	6 44 48.4	102.91
10	0 13 7.73	1 26 42.5	103.14	10	1 51 17.03	6 55 5.2	102.68
11	0 15 6.71	1 16 23.1	103.32	11	1 53 24.69	7 5 20.6	102.45
12	0 17 5.81	1 6 2.6	103.49	12	1 55 32.59	7 15 34.6	102.21
13	0 19 5.03	0 55 41.1	103.65	13	1 57 40.74	7 25 47.1	101.95
14	0 21 4.36	0 45 18.7	103.81	14	1 59 49.14	7 35 58.0	101.68
15	0 23 3.82	0 34 55.4	103.96	15	2 1 57.80	7 46 7.3	101.41
16	0 25 3.40	0 24 31.2	104.10	16	2 4 6.71	7 56 15.0	101.13
17	0 27 3.10	0 14 6.2	104.23	17	2 6 15.88	8 6 20.9	100.83
18	0 29 2.94	S. 0 3 40.4	104.36	18	2 8 25.31	8 16 24.9	100.52
19	0 31 2.92	N. 0 6 46.1	104.48	19	2 10 35.00	8 26 27.1	100.21
20	0 33 3.03	0 17 13.3	104.59	20	2 12 44.95	8 36 27.4	99.88
21	0 35 3.28	0 27 41.2	104.70	21	2 14 55.17	8 46 25.6	99.53
22	0 37 3.67	0 38 9.7	104.79	22	2 17 5.65	8 56 21.8	99.18
23	0 39 4.21	0 48 38.7	104.88	23	2 19 16.41	9 6 15.8	98.82
24	0 41 4.90	N. 0 59 8.3	104.96	24	2 21 27.43	N. 9 16 7.6	98.44
MONDAY 18.				WEDNESDAY 20.			
0	0 43 5.74	N. 1 9 38.3	105.03	0	2 23 38.73	N. 9 25 57.1	98.06
1	0 45 6.73	1 20 8.7	105.10	1	2 25 50.30	9 35 44.3	97.66
2	0 47 7.88	1 30 39.5	105.17	2	2 28 2.15	9 45 29.0	97.25
3	0 49 9.19	1 41 10.7	105.22	3	2 30 14.28	9 55 11.3	96.83
4	0 51 10.66	1 51 42.1	105.26	4	2 32 26.68	10 4 51.0	96.39
5	0 53 12.30	2 2 13.8	105.30	5	2 34 39.37	10 14 28.0	95.95
6	0 55 14.11	2 12 45.7	105.33	6	2 36 52.34	10 24 2.4	95.50
7	0 57 16.09	2 23 17.7	105.34	7	2 39 5.59	10 33 34.0	95.03
8	0 59 18.25	2 33 49.7	105.34	8	2 41 19.13	10 43 2.7	94.55
9	1 1 20.58	2 44 21.8	105.35	9	2 43 32.95	10 52 28.6	94.06
10	1 3 23.09	2 54 53.9	105.34	10	2 45 47.05	11 1 51.5	93.56
11	1 5 25.79	3 5 25.9	105.33	11	2 48 1.45	11 11 11.3	93.04
12	1 7 28.67	3 15 57.8	105.31	12	2 50 16.13	11 20 28.0	92.52
13	1 9 31.74	3 26 29.6	105.28	13	2 52 31.11	11 29 41.5	91.98
14	1 11 35.00	3 37 1.1	105.23	14	2 54 46.37	11 38 51.7	91.43
15	1 13 38.46	3 47 32.3	105.18	15	2 57 1.93	11 47 58.6	90.86
16	1 15 42.12	3 58 3.2	105.13	16	2 59 17.78	11 57 2.0	90.28
17	1 17 45.97	4 8 33.8	105.06	17	3 1 33.92	12 6 1.9	89.69
18	1 19 50.03	4 19 4.0	104.98	18	3 3 50.36	12 14 58.3	89.09
19	1 21 54.29	4 29 33.6	104.89	19	3 6 7.09	12 23 51.0	88.48
20	1 23 58.76	4 40 2.7	104.80	20	3 8 24.12	12 32 40.0	87.85
21	1 26 3.44	4 50 31.2	104.69	21	3 10 41.45	12 41 25.2	87.22
22	1 28 8.34	5 0 59.0	104.58	22	3 12 59.07	12 50 6.6	86.57
23	1 30 13.45	5 11 26.1	104.45	23	3 15 16.98	12 58 44.0	85.90
24	1 32 18.78	N. 5 21 52.4	104.32	24	3 17 35.19	N. 13 7 17.4	85.23

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
THURSDAY 21.				 SATURDAY 23.			
	<i>h m s</i>	<i>N. ° ' "</i>	<i>"</i>		<i>h m s</i>	<i>N. ° ' "</i>	<i>"</i>
0	3 17 35.19	N.13 7 17.4	85.23	0	5 13 36.88	N.18 15 46.9	39.03
1	3 19 53.70	13 15 46.7	84.54	1	5 16 7.78	18 19 37.4	37.81
2	3 22 12.50	13 24 11.9	83.84	2	5 18 38.86	18 23 20.6	36.59
3	3 24 31.60	13 32 32.8	83.12	3	5 21 10.11	18 26 56.5	35.37
4	3 26 50.99	13 40 49.4	82.40	4	5 23 41.53	18 30 25.0	34.13
5	3 29 10.69	13 49 1.6	81.67	5	5 26 13.12	18 33 46.1	32.89
6	3 31 30.68	13 57 9.4	80.92	6	5 28 44.87	18 36 59.7	31.64
7	3 33 50.96	14 5 12.6	80.15	7	5 31 16.77	18 40 5.8	30.39
8	3 36 11.54	14 13 11.2	79.38	8	5 33 48.82	18 43 4.4	29.13
9	3 38 32.41	14 21 5.2	78.60	9	5 36 21.01	18 45 55.3	27.86
10	3 40 53.57	14 28 54.4	77.80	10	5 38 53.34	18 48 38.7	26.59
11	3 43 15.02	14 36 38.8	76.98	11	5 41 25.80	18 51 14.4	25.31
12	3 45 36.77	14 44 18.2	76.16	12	5 43 58.39	18 53 42.4	24.03
13	3 47 58.81	14 51 52.7	75.33	13	5 46 31.10	18 56 2.7	22.74
14	3 50 21.13	14 59 22.2	74.48	14	5 49 3.93	18 58 15.3	21.44
15	3 52 43.74	15 6 46.5	73.63	15	5 51 36.87	19 0 20.0	20.14
16	3 55 6.64	15 14 5.7	72.76	16	5 54 9.92	19 2 17.0	18.84
17	3 57 29.82	15 21 19.6	71.87	17	5 56 43.07	19 4 6.1	17.53
18	3 59 53.29	15 28 28.1	70.97	18	5 59 16.31	19 5 47.4	16.22
19	4 2 17.03	15 35 31.2	70.07	19	6 1 49.64	19 7 20.8	14.91
20	4 4 41.06	15 42 28.9	69.16	20	6 4 23.06	19 8 46.3	13.59
21	4 7 5.36	15 49 21.1	68.23	21	6 6 56.55	19 10 3.9	12.28
22	4 9 29.94	15 56 7.6	67.28	22	6 9 30.11	19 11 13.6	10.95
23	4 11 54.79	N.16 2 48.4	66.32	23	6 12 3.73	N.19 12 15.3	9.62
FRIDAY 22.				SUNDAY 24.			
	<i>h m s</i>	<i>N. ° ' "</i>	<i>"</i>		<i>h m s</i>	<i>N. ° ' "</i>	<i>"</i>
0	4 14 19.91	N.16 9 23.4	65.35	0	6 14 37.41	N.19 13 9.0	8.29
1	4 16 45.30	16 15 52.6	64.37	1	6 17 11.15	19 13 54.8	6.96
2	4 19 10.96	16 22 15.9	63.38	2	6 19 44.93	19 14 32.5	5.63
3	4 21 36.89	16 28 33.2	62.38	3	6 22 18.75	19 15 2.3	4.29
4	4 24 3.08	16 34 44.5	61.37	4	6 24 52.60	19 15 24.0	2.96
5	4 26 29.52	16 40 49.7	60.35	5	6 27 26.49	19 15 37.8	1.63
6	4 28 56.22	16 46 48.7	59.32	6	6 30 0.40	19 15 43.5	0.28
7	4 31 23.18	16 52 41.5	58.28	7	6 32 34.32	19 15 41.2	1.05
8	4 33 50.39	16 58 28.0	57.22	8	6 35 8.25	19 15 30.9	2.38
9	4 36 17.84	17 4 8.1	56.15	9	6 37 42.19	19 15 12.6	3.72
10	4 38 45.54	17 9 41.8	55.08	10	6 40 16.13	19 14 46.2	5.07
11	4 41 13.48	17 15 9.1	54.00	11	6 42 50.06	19 14 11.8	6.40
12	4 43 41.65	17 20 29.8	52.90	12	6 45 23.97	19 13 29.4	7.73
13	4 46 10.06	17 25 43.9	51.79	13	6 47 57.87	19 12 39.0	9.08
14	4 48 38.70	17 30 51.3	50.68	14	6 50 31.74	19 11 40.5	10.41
15	4 51 7.57	17 35 52.0	49.55	15	6 53 5.58	19 10 34.1	11.73
16	4 53 36.66	17 40 45.9	48.42	16	6 55 39.39	19 9 19.7	13.07
17	4 56 5.97	17 45 33.0	47.28	17	6 58 13.15	19 7 57.3	14.40
18	4 58 35.49	17 50 13.2	46.13	18	7 0 46.86	19 6 26.9	15.73
19	5 1 5.22	17 54 46.5	44.97	19	7 3 20.52	19 4 48.6	17.04
20	5 3 35.16	17 59 12.8	43.79	20	7 5 54.12	19 3 2.4	18.32
21	5 6 5.30	18 3 32.0	42.61	21	7 8 27.66	19 1 8.2	19.68
22	5 8 35.64	18 7 44.1	41.43	22	7 11 1.12	18 59 6.2	20.99
23	5 11 6.17	18 11 49.1	40.23	23	7 13 34.51	18 56 56.3	22.31
24	5 13 36.88	N.18 15 46.9	39.03	24	7 16 7.81	N.18 54 38.5	23.62

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 25.				WEDNESDAY 27.			
0	h m s	N. ° ' "	"	0	h m s	N. ° ' "	"
1	7 16 7.81	N. 18 54 38.5	23.62	1	9 15 43.33	N. 14 43 21.0	77.76
2	7 18 41.03	18 52 12.9	24.92	2	9 18 7.69	14 35 31.8	78.64
3	7 21 14.16	18 49 39.5	26.21	3	9 20 31.80	14 27 37.3	79.52
4	7 23 47.18	18 46 58.4	27.50	4	9 22 55.67	14 19 37.6	80.38
5	7 26 20.11	18 44 9.5	28.79	5	9 25 19.30	14 11 32.8	81.23
6	7 28 52.93	18 41 12.9	30.08	6	9 27 42.69	14 3 22.8	82.08
7	7 31 25.63	18 38 8.6	31.35	7	9 30 5.83	13 55 7.8	82.91
8	7 33 58.22	18 34 56.7	32.62	8	9 32 28.73	13 46 47.9	83.73
9	7 36 30.68	18 31 37.2	33.88	9	9 34 51.39	13 38 23.1	84.53
10	7 39 3.02	18 28 10.1	35.15	10	9 37 13.80	13 29 53.5	85.33
11	7 41 35.22	18 24 35.4	36.41	11	9 39 35.97	13 21 19.1	86.12
12	7 44 7.29	18 20 53.2	37.65	12	9 41 57.89	13 12 40.1	86.89
13	7 46 39.22	18 17 3.6	38.89	13	9 44 19.57	13 3 56.4	87.66
14	7 49 11.00	18 13 6.5	40.13	14	9 46 41.01	12 55 8.2	88.40
15	7 51 42.62	18 9 2.1	41.35	15	9 49 2.20	12 46 15.6	89.13
16	7 54 14.09	18 4 50.3	42.57	16	9 51 23.15	12 37 18.6	89.86
17	7 56 45.40	18 0 31.2	43.78	17	9 53 43.86	12 28 17.3	90.58
18	7 59 16.55	17 56 4.9	44.99	18	9 56 4.33	12 19 11.7	91.28
19	8 1 47.53	17 51 31.3	46.19	19	9 58 24.56	12 10 2.0	91.96
20	8 4 18.34	17 46 50.6	47.38	20	10 0 44.56	12 0 48.2	92.64
21	8 6 48.98	17 42 2.8	48.56	21	10 3 4.31	11 51 30.3	93.32
22	8 9 19.44	17 37 7.9	49.73	22	10 5 23.82	11 42 8.4	93.97
23	8 11 49.71	17 32 6.0	50.89	23	10 7 43.10	11 32 42.7	94.60
24	8 14 19.80	N. 17 26 57.2	52.05	24	10 10 2.14	N. 11 23 13.2	95.23
TUESDAY 26.				THURSDAY 28.			
0	8 16 49.69	N. 17 21 41.4	53.20	0	10 12 20.95	N. 11 13 39.9	95.85
1	8 19 19.40	17 16 18.8	54.33	1	10 14 39.53	11 4 3.0	96.46
2	8 21 48.91	17 10 49.4	55.46	2	10 16 57.87	10 54 22.4	97.06
3	8 24 18.21	17 5 13.3	56.58	3	10 19 15.99	10 44 38.3	97.63
4	8 26 47.32	16 59 30.4	57.70	4	10 21 33.87	10 34 50.8	98.20
5	8 29 16.23	16 53 40.9	58.79	5	10 23 51.53	10 24 59.9	98.77
6	8 31 44.92	16 47 44.9	59.88	6	10 26 8.96	10 15 5.6	99.32
7	8 34 13.41	16 41 42.3	60.96	7	10 28 26.16	10 5 8.1	99.85
8	8 36 41.68	16 35 33.3	62.03	8	10 30 43.15	9 55 7.4	100.38
9	8 39 9.73	16 29 17.9	63.10	9	10 32 59.91	9 45 3.6	100.88
10	8 41 37.57	16 22 56.1	64.15	10	10 35 16.45	9 34 56.8	101.38
11	8 44 5.19	16 16 28.1	65.19	11	10 37 32.77	9 24 47.0	101.87
12	8 46 32.58	16 9 53.8	66.22	12	10 39 48.88	9 14 34.4	102.34
13	8 48 59.75	16 3 13.4	67.24	13	10 42 4.77	9 4 18.9	102.82
14	8 51 26.69	15 56 26.9	68.25	14	10 44 20.45	8 54 0.6	103.28
15	8 53 53.41	15 49 34.4	69.25	15	10 46 35.92	8 43 39.6	103.72
16	8 56 19.90	15 42 35.9	70.24	16	10 48 51.18	8 33 16.0	104.14
17	8 58 46.15	15 35 31.5	71.22	17	10 51 6.24	8 22 49.9	104.56
18	9 1 12.17	15 28 21.2	72.19	18	10 53 21.10	8 12 21.3	104.97
19	9 3 37.96	15 21 5.2	73.14	19	10 55 35.75	8 1 50.3	105.37
20	9 6 3.51	15 13 43.5	74.08	20	10 57 50.20	7 51 16.9	105.75
21	9 8 28.82	15 6 16.2	75.02	21	11 0 4.45	7 40 41.3	106.13
22	9 10 53.90	14 58 43.3	75.94	22	11 2 18.51	7 30 3.4	106.49
23	9 13 18.73	14 51 4.9	76.86	23	11 4 32.58	7 19 23.4	106.83
24	9 15 43.33	N. 14 43 21.0	77.76	24	11 6 46.05	N. 7 8 41.4	107.18

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
FRIDAY 29.				SUNDAY 31.			
0	11 6 46.5	N. 7 8 41.4	107.18	0	12 50 50.34	S. 1 44 25.0	110.99
1	11 8 59.54	6 57 57.3	107.51	1	12 52 57.96	1 55 30.5	110.83
2	11 11 12.84	6 47 11.3	107.82	2	12 55 5.53	2 6 35.0	110.67
3	11 13 25.96	6 36 23.5	108.13	3	12 57 13.04	2 17 38.5	110.48
4	11 15 38.91	6 25 33.8	108.43	4	12 59 20.50	2 28 40.8	110.28
5	11 17 51.67	6 14 42.4	108.71	5	13 1 27.92	2 39 41.9	110.08
6	11 20 4.26	6 3 49.3	108.98	6	13 3 35.29	2 50 41.8	109.86
7	11 22 16.67	5 52 54.6	109.24	7	13 5 42.62	3 1 40.4	109.66
8	11 24 28.92	5 41 58.4	109.49	8	13 7 49.90	3 12 37.7	109.43
9	11 26 41.00	5 31 0.7	109.73	9	13 9 57.15	3 23 33.5	109.18
10	11 28 52.91	5 20 1.6	109.97	10	13 12 4.37	3 34 27.9	108.94
11	11 31 4.66	5 9 1.1	110.18	11	13 14 11.55	3 45 20.8	108.68
12	11 33 16.25	4 57 59.4	110.38	12	13 16 18.70	3 56 12.1	108.42
13	11 35 27.68	4 46 56.5	110.58	13	13 18 25.82	4 7 1.8	108.15
14	11 37 38.96	4 35 52.4	110.77	14	13 20 32.92	4 17 49.9	107.87
15	11 39 50.09	4 24 47.3	110.94	15	13 22 40.00	4 28 36.2	107.58
16	11 42 1.06	4 13 41.1	111.11	16	13 24 47.06	4 39 20.8	107.28
17	11 44 11.89	4 2 34.0	111.26	17	13 26 54.10	4 50 3.5	106.97
18	11 46 22.58	3 51 26.0	111.41	18	13 29 1.12	5 0 44.4	106.65
19	11 48 33.13	3 40 17.1	111.54	19	13 31 8.12	5 11 23.3	106.33
20	11 50 43.54	3 29 7.5	111.66	20	13 33 15.12	5 22 0.3	105.99
21	11 52 53.81	3 17 57.2	111.78	21	13 35 22.10	5 32 35.2	105.64
22	11 55 3.96	3 6 46.2	111.88	22	13 37 29.08	5 43 8.0	105.29
23	11 57 13.97	2 55 34.7	111.97	23	13 39 36.06	5 53 38.7	104.93
SATURDAY 30.				MONDAY, JUNE 1.			
0	11 59 23.85	N. 2 44 22.6	112.05	0	13 41 43.03	S. 6 4 7.1	104.55
1	12 1 33.61	2 33 10.1	112.12				
2	12 3 43.25	2 21 57.2	112.18				
3	12 5 52.78	2 10 43.9	112.23				
4	12 8 2.19	1 59 30.4	112.27				
5	12 10 11.48	1 48 16.7	112.30				
6	12 12 20.66	1 37 2.8	112.32				
7	12 14 29.74	1 25 48.8	112.33				
8	12 16 38.72	1 14 34.8	112.33				
9	12 18 47.59	1 3 20.8	112.32				
10	12 20 56.36	0 52 6.9	112.30				
11	12 23 5.03	0 40 53.2	112.27				
12	12 25 13.61	0 29 39.7	112.23				
13	12 27 22.10	0 18 26.4	112.18				
14	12 29 30.51	N. 0 7 13.5	112.12				
15	12 31 38.83	S. 0 3 59.0	112.05				
16	12 33 47.07	0 15 11.1	111.98				
17	12 35 55.23	0 26 22.7	111.89				
18	12 38 3.31	0 37 33.8	111.79				
19	12 40 11.32	0 48 44.2	111.68				
20	12 42 19.25	0 59 53.9	111.56				
21	12 44 27.12	1 11 2.9	111.44				
22	12 46 34.93	1 22 11.2	111.31				
23	12 48 42.67	1 33 18.6	111.15				
24	12 50 50.34	S. 1 44 25.0	110.99				

PHASES OF THE MOON.			
May 6	○ Full Moon	-	6 36.9
14	☾ Last Quarter	-	5 15.1
21	● New Moon	-	18 35.9
28	☾ First Quarter	-	11 41.9

PHASES OF THE MOON.			
May 12	☾ Apogee	- - - -	23
24	☾ Perigee	- - - -	21

MEAN TIME.

LUNAR DISTANCES.

Day of Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^b .	P.L. of diff.	VI ^b .	P.L. of diff.	IX ^b .	P.L. of diff.
1	SUN W.	112 46 50	2646	114 24 42	2649	116 2 30	2654	117 40 12	2658
	Venus W.	67 30 36	2689	69 7 30	2691	70 44 22	2694	72 21 10	2696
	Pollux W.	43 8 21	2458	44 50 34	2453	46 32 54	2448	48 15 21	2444
	Spica E.	47 54 31	2361	46 10 0	2366	44 25 36	2372	42 41 21	2379
	Saturn E.	89 49 32	2303	88 3 37	2306	86 17 46	2309	84 31 59	2312
	Antares E.	93 47 16	2378	92 3 10	2382	90 19 9	2385	88 35 13	2388
2	SUN W.	125 47 14	2682	127 24 18	2688	129 1 14	2694	130 38 2	2700
	Venus W.	80 24 19	2712	82 0 43	2716	83 37 2	2720	85 13 15	2724
	Pollux W.	56 48 25	2439	58 31 4	2440	60 13 42	2441	61 56 19	2443
	Spica E.	34 2 50	2423	32 19 48	2435	30 37 3	2449	28 54 38	2465
	Saturn E.	75 44 22	2331	73 59 8	2335	72 14 0	2339	70 28 58	2344
	Antares E.	79 56 49	2409	78 13 27	2414	76 30 12	2419	74 47 5	2425
3	Venus W.	93 12 45	2751	94 48 17	2757	96 23 42	2764	97 58 57	2770
	Pollux W.	70 28 26	2459	72 10 37	2464	73 52 41	2468	75 34 39	2473
	Regulus W.	34 4 9	2387	35 48 3	2392	37 31 49	2398	39 15 26	2405
	Saturn E.	61 45 41	2371	60 1 25	2377	58 17 18	2384	56 33 21	2390
	Antares E.	66 13 43	2459	64 31 32	2467	62 49 33	2476	61 7 46	2485
4	Venus W.	105 52 55	2809	107 27 11	2817	109 1 17	2826	110 35 11	2835
	Pollux W.	84 2 28	2505	85 43 35	2512	87 24 31	2520	89 5 17	2528
	Regulus W.	47 51 12	2439	49 33 51	2447	51 16 19	2454	52 58 37	2462
	Saturn E.	47 56 0	2427	46 13 4	2436	44 30 20	2444	42 47 48	2453
	Antares E.	52 42 12	2538	51 1 51	2550	49 21 47	2563	47 42 2	2577
5	Pollux W.	97 26 11	2573	99 5 43	2582	100 45 2	2592	102 24 8	2604
	Regulus W.	61 27 8	2506	63 8 13	2515	64 49 5	2525	66 29 44	2535
	Saturn E.	34 18 20	2502	32 37 9	2513	30 56 14	2525	29 15 35	2536
	Antares E.	39 28 33	2664	37 51 5	2686	36 14 7	2710	34 37 41	2736
	α Aquilæ E.	88 22 41	2989	86 52 15	3000	85 22 2	3013	83 52 5	3025
6	Regulus W.	74 49 32	2585	76 28 47	2596	78 7 47	2607	79 46 33	2618
	Spica W.	21 51 55	2744	23 27 36	2736	25 3 28	2730	26 39 28	2728
	α Aquilæ E.	76 26 40	3105	74 58 36	3124	73 30 55	3143	72 3 38	3164
	Fomalhaut E.	109 35 55	2922	108 4 4	2927	106 32 19	2932	105 0 41	2938
7	Regulus W.	87 56 32	2675	89 33 46	2687	91 10 44	2698	92 47 27	2710
	Spica W.	34 39 19	2744	36 15 1	2750	37 50 34	2757	39 25 58	2765
	α Aquilæ E.	64 54 2	3289	63 29 38	3319	62 5 49	3350	60 42 35	3383
	Fomalhaut E.	97 24 40	2978	95 54 0	2987	94 23 31	2998	92 53 16	3009
8	Spica W.	47 20 14	2810	48 54 29	2820	50 28 31	2829	52 2 21	2840
	α Aquilæ E.	53 56 29	3579	52 37 32	3625	51 19 25	3675	50 2 12	3730
	Fomalhaut E.	85 25 31	3069	83 56 44	3082	82 28 13	3096	80 59 59	3111
	α Pegasi E.	100 18 40	3078	98 50 3	3086	97 21 36	3096	95 53 22	3105
	Jupiter E.	115 3 43	2840	113 30 7	2852	111 56 47	2865	110 23 43	2876
9	Spica W.	59 48 13	2890	61 20 45	2901	62 53 3	2910	64 25 9	2920
	Saturn W.	18 12 31	2887	19 45 6	2891	21 17 36	2896	22 50 0	2902
	Fomalhaut E.	73 43 18	3188	72 16 54	3204	70 50 50	3221	69 25 6	3239
	α Pegasi E.	88 35 18	3160	87 8 21	3172	85 41 39	3184	84 15 11	3197
	Jupiter E.	102 42 2	2933	101 10 25	2944	99 39 2	2955	98 7 53	2965
	Mars E.	119 33 56	3139	118 6 34	3152	116 39 27	3163	115 12 33	3174

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Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
1	SUN W.	119 17 48	2662	120 55 19	2666	122 32 44	2672	124 10 2	2676
	Venus W.	73 57 56	2699	75 34 38	2702	77 11 16	2705	78 47 50	2708
	Pollux W.	49 57 53	2442	51 40 28	2440	53 23 6	2439	55 5 45	2438
	Spica E.	40 57 16	2386	39 13 21	2394	37 29 38	2403	35 46 7	2412
	Saturn E.	82 46 17	2315	81 0 40	2319	79 15 9	2322	77 29 42	2327
	Antares E.	86 51 21	2391	85 7 34	2395	83 23 53	2399	81 40 17	2405
2	SUN W.	132 14 42	2707	133 51 13	2714	135 27 35	2721	137 3 47	2729
	Venus W.	86 49 23	2729	88 25 24	2735	90 1 18	2740	91 37 5	2745
	Pollux W.	63 38 52	2445	65 21 22	2448	67 3 48	2451	68 46 10	2455
	Spica E.	27 12 35	2483	25 30 58	2504	23 49 51	2529	22 9 18	2559
	Saturn E.	68 44 3	2350	66 59 16	2355	65 14 37	2360	63 30 5	2366
	Antares E.	73 4 6	2431	71 21 16	2438	69 38 35	2445	67 56 4	2452
3	Venus W.	99 34 4	2778	101 9 1	2785	102 43 49	2792	104 18 27	2800
	Pollux W.	77 16 30	2479	78 58 12	2485	80 39 47	2492	82 21 12	2498
	Regulus W.	40 58 54	2411	42 42 13	2417	44 25 23	2425	46 8 22	2431
	Saturn E.	54 49 32	2398	53 5 54	2404	51 22 25	2412	49 39 7	2419
	Antares E.	59 26 11	2494	57 44 50	2504	56 3 42	2515	54 22 49	2526
4	Venus W.	112 8 53	2845	113 42 23	2855	115 15 40	2865	116 48 44	2876
	Pollux W.	90 45 52	2536	92 26 15	2545	94 6 26	2553	95 46 25	2563
	Regulus W.	54 40 43	2471	56 22 37	2479	58 4 20	2488	59 45 50	2497
	Saturn E.	41 5 28	2462	39 23 21	2471	37 41 27	2480	35 59 46	2491
	Antares E.	46 2 36	2593	44 23 31	2609	42 44 48	2626	41 6 28	2644
5	Pollux W.	104 2 58	2614	105 41 34	2626	107 19 54	2637	108 57 59	2649
	Regulus W.	68 10 9	2544	69 50 21	2554	71 30 19	2564	73 10 3	2575
	Saturn E.	27 35 12	2549	25 55 7	2562	24 15 20	2577	22 35 53	2592
	Antares E.	33 1 49	2765	31 26 35	2797	29 52 4	2833	28 18 19	2874
	α Aquilæ E.	82 22 23	3039	80 52 59	3054	79 23 53	3069	77 55 6	3087
6	Regulus W.	81 25 3	2629	83 3 18	2641	84 41 18	2652	86 19 3	2663
	Spica W.	28 15 31	2729	29 51 33	2730	31 27 33	2733	33 3 29	2738
	α Aquilæ E.	70 36 46	3187	69 10 22	3210	67 44 25	3236	66 18 58	3262
	Fomalhaut E.	103 29 10	2945	101 57 48	2952	100 26 35	2960	98 55 32	2969
7	Regulus W.	94 23 54	2722	96 0 5	2733	97 36 1	2745	99 11 41	2757
	Spica W.	41 1 12	2773	42 36 15	2782	44 11 6	2791	45 45 46	2800
	α Aquilæ E.	59 19 59	3417	57 58 2	3454	56 36 47	3493	55 16 15	3535
	Fomalhaut E.	91 23 14	3020	89 53 26	3031	88 23 52	3044	86 54 34	3056
8	Spica W.	53 35 57	2849	55 9 21	2860	56 42 31	2870	58 15 29	2880
	α Aquilæ E.	48 45 57	3787	47 30 41	3850	46 16 30	3917	45 3 27	3990
	Fomalhaut E.	79 32 3	3125	78 4 24	3140	76 37 3	3156	75 10 1	3172
	α Pegasi E.	94 25 19	3116	92 57 29	3127	91 29 52	3138	90 2 28	3149
	Jupiter E.	108 50 53	2887	107 18 18	2899	105 45 58	2911	104 13 53	2922
9	Spica W.	65 57 3	2930	67 28 44	2939	69 0 13	2949	70 31 30	2959
	Saturn W.	24 22 17	2908	25 54 26	2915	27 26 26	2922	28 58 17	2929
	Fomalhaut E.	67 59 43	3257	66 34 41	3275	65 10 0	3294	63 45 42	3314
	α Pegasi E.	82 48 58	3209	81 22 59	3222	79 57 16	3235	78 31 48	3248
	Jupiter E.	96 36 57	2976	95 6 14	2987	93 35 45	2997	92 5 28	3006
	Mars E.	113 45 53	3184	112 19 25	3196	110 53 11	3206	109 27 9	3216

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Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
10	Saturn W.	30 29 59	2937	32 1 31	2945	33 32 53	2952	35 4 6	2959
	Antares W.	27 19 48	3231	28 45 20	3213	30 11 14	3200	31 37 23	3189
	Fomalhaut E.	62 21 47	3334	60 58 15	3355	59 35 7	3377	58 12 24	3400
	α Pegasi E.	77 6 36	3262	75 41 40	3275	74 16 59	3289	72 52 35	3304
	Jupiter E.	90 35 23	3016	89 5 30	3026	87 35 49	3035	86 6 19	3043
	Mars E.	108 1 19	3226	106 35 41	3236	105 10 15	3246	103 45 0	3255
	SUN E.	136 4 7	3334	134 40 34	3342	133 17 11	3351	131 53 58	3359
11	Saturn W.	42 37 57	2993	44 8 19	3000	45 38 32	3005	47 8 38	3010
	Antares W.	38 50 42	3160	40 17 39	3158	41 44 38	3156	43 11 40	3155
	Fomalhaut E.	51 25 35	3529	50 5 43	3559	48 46 24	3590	47 27 39	3624
	α Pegasi E.	65 54 48	3379	64 32 7	3395	63 9 44	3412	61 47 41	3429
	Jupiter E.	78 41 25	3083	77 12 54	3090	75 44 32	3096	74 16 17	3102
	Mars E.	96 41 20	3296	95 17 4	3304	93 52 57	3311	92 28 58	3317
	SUN E.	125 0 7	3396	123 37 46	3403	122 15 33	3408	120 53 26	3415
12	Saturn W.	54 37 37	3033	56 7 9	3036	57 36 37	3039	59 6 2	3041
	Antares W.	50 27 4	3152	51 54 11	3152	53 21 18	3151	54 48 26	3150
	α Pegasi E.	55 2 29	3526	53 42 33	3547	52 23 1	3570	51 3 54	3596
	Jupiter E.	66 56 47	3127	65 29 10	3130	64 1 37	3134	62 34 8	3137
	Mars E.	85 30 43	3343	84 7 21	3346	82 44 3	3350	81 20 49	3353
	SUN E.	114 4 27	3439	112 42 55	3442	111 21 26	3446	110 0 1	3448
13	Saturn W.	66 32 30	3047	68 1 45	3047	69 31 0	3046	71 0 16	3045
	Antares W.	62 4 21	3144	63 31 37	3142	64 58 56	3140	66 26 17	3138
	α Pegasi E.	44 35 42	3748	43 19 45	3787	42 4 29	3829	40 49 57	3875
	Jupiter E.	55 17 23	3143	53 50 6	3143	52 22 49	3143	50 55 31	3142
	Mars E.	74 25 22	3361	73 2 21	3360	71 39 19	3361	70 16 18	3360
	SUN E.	103 13 30	3454	101 52 14	3454	100 30 59	3454	99 9 43	3452
14	Saturn W.	78 27 6	3032	79 56 39	3028	81 26 17	3024	82 56 0	3019
	Antares W.	73 43 59	3119	75 11 46	3114	76 39 39	3109	78 7 38	3104
	Jupiter E.	43 38 34	3130	42 11 1	3126	40 43 23	3122	39 15 40	3118
	Mars E.	63 20 42	3347	61 57 25	3344	60 34 4	3339	59 10 38	3335
	SUN E.	92 22 50	3439	91 1 17	3434	89 39 39	3430	88 17 56	3424
15	Saturn W.	90 26 17	2988	91 56 45	2981	93 27 22	2973	94 58 9	2963
	Antares W.	85 29 22	3070	86 58 8	3062	88 27 4	3054	89 56 10	3045
	α Aquilæ W.	43 29 51	4170	44 38 45	4103	45 48 44	4040	46 59 44	3980
	Jupiter E.	31 55 31	3087	30 27 6	3080	28 58 32	3073	27 29 50	3065
	Mars E.	52 11 53	3303	50 47 45	3295	49 23 28	3287	47 59 1	3279
	SUN E.	81 27 40	3391	80 5 13	3382	78 42 36	3374	77 19 50	3365
16	Saturn W.	102 34 57	2915	104 6 57	2905	105 39 10	2894	107 11 37	2882
	α Aquilæ W.	53 8 25	3736	54 24 34	3694	55 41 27	3656	56 59 1	3619
	Mars E.	40 54 13	3231	39 28 41	3220	38 2 56	3210	36 36 59	3199
	SUN E.	70 23 12	3313	68 59 15	3302	67 35 6	3289	66 10 42	3277
17	α Aquilæ W.	63 36 25	3455	64 57 40	3426	66 19 27	3397	67 41 47	3371
	Fomalhaut W.	31 21 59	4163	32 31 0	4040	33 42 0	3929	34 54 50	3829
	Mars E.	29 23 54	3143	27 56 36	3133	26 29 6	3122	25 1 23	3111
	SUN E.	59 5 0	3211	57 39 4	3197	56 12 51	3183	54 46 22	3169
18	α Aquilæ W.	74 40 52	3248	76 6 5	3225	77 31 45	3204	78 57 50	3182

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10	Saturn W.	36° 35' 10"	2966	38° 6' 5"	2974	39° 36' 51"	2981	41° 7' 28"	2987
	Antares W.	33° 3' 46"	3180	34° 30' 19"	3173	35° 57' 1"	3167	37° 23' 49"	3163
	Fomalhaut E.	56° 50' 7"	3423	55° 28' 16"	3447	54° 6' 53"	3473	52° 45' 59"	3500
	α Pegasi E.	71° 28' 28"	3318	70° 4' 37"	3332	68° 41' 3"	3347	67° 17' 46"	3364
	Jupiter E.	84° 37' 0"	3051	83° 7' 51"	3060	81° 38' 53"	3068	80° 10' 4"	3076
	Mars E.	102° 19' 56"	3264	100° 55' 2"	3273	99° 30' 19"	3281	98° 5' 45"	3288
	SUN E.	130° 30' 54"	3366	129° 7' 59"	3374	127° 45' 13"	3382	126° 22' 36"	3389
11	Saturn W.	48° 38' 38"	3016	50° 8' 31"	3021	51° 38' 18"	3025	53° 8' 0"	3029
	Antares W.	44° 38' 43"	3154	46° 5' 47"	3153	47° 32' 52"	3152	48° 59' 58"	3152
	Fomalhaut E.	46° 9' 31"	3661	44° 52' 3"	3700	43° 35' 16"	3742	42° 19' 13"	3788
	α Pegasi E.	60° 25' 57"	3447	59° 4' 33"	3465	57° 43' 30"	3484	56° 22' 48"	3505
	Jupiter E.	72° 48' 10"	3108	71° 20' 10"	3114	69° 52' 17"	3118	68° 24' 29"	3123
	Mars E.	91° 5' 6"	3323	89° 41' 21"	3328	88° 17' 42"	3334	86° 54' 10"	3339
	SUN E.	119° 31' 27"	3420	118° 9' 33"	3426	116° 47' 46"	3431	115° 26' 4"	3435
12	Saturn W.	60° 35' 24"	3042	62° 4' 43"	3044	63° 34' 0"	3046	65° 3' 16"	3047
	Antares W.	56° 15' 35"	3149	57° 42' 45"	3149	59° 9' 55"	3148	60° 37' 7"	3146
	α Pegasi E.	49° 45' 15"	3622	48° 27' 4"	3650	47° 9' 23"	3680	45° 52' 15"	3713
	Jupiter E.	61° 6' 43"	3138	59° 39' 20"	3140	58° 11' 59"	3142	56° 44' 41"	3143
	Mars E.	79° 57' 39"	3356	78° 34' 32"	3358	77° 11' 27"	3359	75° 48' 24"	3360
	SUN E.	108° 38' 39"	3450	107° 17' 19"	3452	105° 56' 1"	3454	104° 34' 45"	3455
13	Saturn W.	72° 29' 33"	3043	73° 58' 52"	3042	75° 28' 13"	3039	76° 57' 38"	3036
	Antares W.	67° 53' 41"	3134	69° 21' 9"	3131	70° 48' 41"	3127	72° 16' 18"	3124
	α Pegasi E.	39° 36' 12"	3926	38° 23' 18"	3982	37° 11' 21"	4047	36° 0' 27"	4117
	Jupiter E.	49° 28' 12"	3141	48° 0' 52"	3138	46° 33' 29"	3136	45° 6' 3"	3133
	Mars E.	68° 53' 15"	3358	67° 30' 11"	3356	66° 7' 4"	3354	64° 43' 55"	3351
	SUN E.	97° 48' 25"	3451	96° 27' 6"	3448	95° 5' 44"	3445	93° 44' 18"	3443
14	Saturn W.	84° 25' 49"	3014	85° 55' 44"	3008	87° 25' 47"	3002	88° 55' 58"	2995
	Antares W.	79° 35' 43"	3097	81° 3' 56"	3091	82° 32' 16"	3084	84° 0' 45"	3078
	Jupiter E.	37° 47' 52"	3112	36° 19' 57"	3107	34° 51' 56"	3101	33° 23' 47"	3095
	Mars E.	57° 47' 7"	3329	56° 23' 29"	3323	54° 59' 44"	3317	53° 35' 52"	3311
	SUN E.	86° 56' 7"	3418	85° 34' 11"	3412	84° 12' 8"	3406	82° 49' 58"	3399
15	Saturn W.	96° 29' 8"	2955	98° 0' 17"	2946	99° 31' 38"	2936	101° 3' 11"	2926
	Antares W.	91° 25' 27"	3037	92° 54' 54"	3027	94° 24' 33"	3018	95° 54' 24"	3008
	α Aquilæ W.	48° 11' 44"	3925	49° 24' 38"	3874	50° 38' 24"	3825	51° 53' 1"	3779
	Jupiter E.	26° 0' 58"	3057	24° 31' 56"	3048	23° 2' 43"	3040	21° 33' 20"	3032
	Mars E.	46° 34' 25"	3270	45° 9' 39"	3261	43° 44' 42"	3251	42° 19' 33"	3241
	SUN E.	75° 56' 53"	3355	74° 33' 45"	3345	73° 10' 26"	3335	71° 46' 55"	3325
16	Saturn W.	108° 44' 19"	2870	110° 17' 16"	2858	111° 50' 29"	2845	113° 23' 58"	2832
	α Aquilæ W.	58° 17' 15"	3583	59° 36' 8"	3549	60° 55' 38"	3516	62° 15' 45"	3486
	Mars E.	35° 10' 49"	3188	33° 44' 25"	3177	32° 17' 48"	3166	30° 50' 58"	3154
	SUN E.	64° 46' 4"	3265	63° 21' 11"	3252	61° 56' 3"	3238	60° 30' 39"	3225
17	α Aquilæ W.	69° 4' 37"	3345	70° 27' 57"	3319	71° 51' 47"	3294	73° 16' 6"	3270
	Fomalhaut W.	36° 9' 22"	3739	37° 25' 28"	3658	38° 43' 0"	3583	40° 1' 53"	3514
	Mars E.	23° 33' 27"	3102	22° 5' 20"	3095	20° 37' 4"	3088	19° 8' 40"	3083
	SUN E.	53° 19' 36"	3153	51° 52' 31"	3139	50° 25' 9"	3125	48° 57' 30"	3110
18	α Aquilæ W.	80° 24' 21"	3162	81° 51' 15"	3142	83° 18' 34"	3124	84° 46' 15"	3106

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Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
18	Fomalhaut W.	41 22 1	3451	42 43 20	3393	44 5 45	3338	45 29 12	3288
	α Pegasi W.	29 8 39	4358	30 14 38	4190	31 23 13	4042	32 34 11	3911
	Sun E.	47 29 32	3095	46 1 16	3081	44 32 43	3065	43 3 51	3051
19	Fomalhaut W.	52 40 5	3078	54 8 41	3043	55 38 0	3010	57 8 1	2978
	α Pegasi W.	38 58 15	3433	40 19 54	3363	41 42 53	3298	43 7 7	3238
	Sun E.	35 35 4	2981	34 4 28	2968	32 33 35	2957	31 2 28	2946
24	Sun W.	30 11 25	2544	31 51 37	2536	33 32 0	2530	35 12 32	2525
	Regulus E.	54 41 14	2184	52 52 20	2181	51 3 23	2179	49 14 24	2178
	Spica E.	108 19 28	2208	106 31 12	2206	104 42 53	2204	102 54 32	2203
25	Sun W.	43 36 32	2512	45 17 23	2513	46 58 23	2512	48 39 19	2514
	Regulus E.	40 9 25	2181	38 20 29	2182	36 31 35	2184	34 42 44	2187
	Spica E.	93 52 33	2204	92 4 12	2206	90 15 53	2208	88 27 37	2211
26	Sun W.	57 3 18	2527	58 43 54	2531	60 24 24	2535	62 4 48	2540
	Venus W.	14 13 43	2876	15 46 33	2796	17 21 6	2738	18 56 55	2696
	Spica E.	79 27 27	2229	77 39 42	2234	75 52 5	2239	74 4 36	2245
	Saturn E.	119 44 26	2188	117 55 41	2194	116 7 4	2198	114 18 33	2202
27	Sun W.	70 25 1	2568	72 4 40	2575	73 44 9	2582	75 23 29	2589
	Venus W.	27 5 59	2604	28 44 49	2597	30 23 48	2593	32 2 53	2591
	Pollux W.	26 33 31	2567	28 13 12	2538	29 53 32	2515	31 34 24	2497
	Spica E.	65 9 21	2277	63 22 48	2285	61 36 26	2292	59 50 15	2300
	Saturn E.	105 17 55	2231	103 30 13	2237	101 42 41	2243	99 55 18	2251
28	Sun W.	83 37 40	2626	85 15 59	2635	86 54 6	2643	88 32 3	2651
	Venus W.	40 18 32	2595	41 57 34	2599	43 36 30	2603	45 15 21	2607
	Pollux W.	40 3 22	2455	41 45 38	2453	43 27 58	2451	45 10 20	2451
	Spica E.	51 2 23	2344	49 17 28	2354	47 32 47	2364	45 48 21	2375
	Saturn E.	91 0 59	2286	89 14 39	2294	87 28 31	2302	85 42 34	2309
29	Sun W.	96 38 56	2694	98 15 44	2703	99 52 20	2712	101 28 44	2721
	Pollux W.	53 41 46	2463	55 23 51	2467	57 5 50	2472	58 47 42	2477
	Venus W.	53 27 57	2635	55 6 5	2641	56 44 5	2647	58 21 56	2654
	Spica E.	37 10 14	2436	35 27 31	2450	33 45 8	2465	32 3 6	2482
	Saturn E.	76 55 40	2350	75 10 53	2357	73 26 17	2366	71 41 54	2374
	Antares E.	83 4 32	2429	81 21 38	2437	79 38 56	2446	77 56 26	2455
30	Sun W.	109 27 42	2766	111 2 54	2776	112 37 53	2786	114 12 39	2795
	Pollux W.	67 15 10	2507	68 56 13	2513	70 37 8	2520	72 17 53	2527
	Venus W.	66 28 54	2688	68 5 50	2696	69 42 35	2703	71 19 11	2711
	Regulus W.	30 49 38	2434	32 32 25	2442	34 15 0	2450	35 57 23	2458
	Saturn E.	63 2 57	2417	61 19 46	2425	59 36 47	2434	57 54 1	2443
	Antares E.	69 27 15	2503	67 46 6	2512	66 5 10	2523	64 24 29	2534
31	Sun W.	122 3 25	2843	123 36 57	2854	125 10 15	2863	126 43 21	2873
	Pollux W.	80 39 6	2565	82 18 49	2572	83 58 22	2581	85 37 43	2589
	Venus W.	79 19 41	2748	80 55 17	2756	82 30 42	2763	84 5 58	2772
	Regulus W.	44 26 23	2500	46 7 36	2509	47 48 37	2517	49 29 26	2525
	Saturn E.	49 23 13	2487	47 41 41	2495	46 0 21	2504	44 19 14	2514
	Antares E.	56 4 49	2590	54 25 40	2602	52 46 48	2615	51 8 14	2629

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
18	Fomalhaut W. α Pegasi W. SUN E.	46 53 37 33 47 19 41 34 41	3241 3794 3036	48 18 58 35 2 27 40 5 13	3197 3690 3022	49 45 11 36 19 24 38 35 27	3155 3596 3008	51 12 14 37 38 3 37 5 24	3115 3511 2994
19	Fomalhaut W. α Pegasi W. SUN E.	58 38 41 44 32 31 29 31 7	2947 3183 2936	60 10 0 45 59 0 27 59 33	2918 3133 2927	61 41 56 47 26 30 26 27 48	2891 3086 2920	63 14 26 48 54 57 24 55 54	2864 3041 2915
24	SUN W. Regulus E. Spica E.	36 53 11 47 25 24 101 6 9	2521 2178 2202	38 33 55 45 36 23 99 17 45	2517 2179 2202	40 14 45 43 47 23 97 29 20	2515 2179 2202	41 55 37 41 58 23 95 40 56	2513 2180 2203
25	SUN W. Regulus E. Spica E.	50 20 13 32 53 57 86 39 25	2516 2190 2213	52 1 4 31 5 15 84 51 17	2517 2194 2217	53 41 53 29 16 38 83 3 15	2520 2196 2221	55 22 38 27 28 5 81 15 18	2524 2199 2225
26	SUN W. Venus W. Spica E. Saturn E.	63 45 6 20 33 40 72 17 15 112 30 9	2545 2665 2250 2208	65 25 16 22 11 6 70 30 2 110 41 53	2551 2643 2257 2213	67 5 19 23 49 2 68 42 59 108 53 45	2556 2626 2263 2219	68 45 14 25 27 22 66 56 5 107 5 45	2562 2613 2270 2225
27	SUN W. Venus W. Pollux W. Spica E. Saturn E.	77 2 39 33 42 1 33 15 41 58 4 15 98 8 6	2596 2590 2484 2309 2257	78 41 40 35 21 10 34 57 17 56 18 28 96 21 3	2604 2590 2473 2317 2264	80 20 30 37 0 19 36 39 8 54 32 53 94 34 11	2611 2591 2465 2326 2272	81 59 10 38 39 27 38 21 11 52 47 31 92 47 30	2618 2593 2459 2335 2279
28	SUN W. Venus W. Pollux W. Spica E. Saturn E.	90 9 49 46 54 7 46 52 42 44 4 10 83 56 48	2660 2612 2452 2387 2317	91 47 23 48 32 45 48 35 3 42 20 16 82 11 13	2668 2617 2454 2398 2325	93 24 46 50 11 17 50 17 21 40 36 38 80 25 50	2677 2623 2456 2410 2333	95 1 57 51 49 41 51 59 36 38 53 17 78 40 39	2686 2629 2460 2422 2342
29	SUN W. Pollux W. Venus W. Spica E. Saturn E. Antares E.	103 4 56 60 29 28 59 59 38 30 21 28 69 57 42 76 14 9	2730 2483 2661 2500 2382 2464	104 40 56 62 11 5 61 37 11 28 40 15 68 13 42 74 32 6	2740 2488 2667 2521 2391 2473	106 16 43 63 52 35 63 14 35 26 59 31 66 29 55 72 50 15	2748 2494 2675 2543 2400 2484	107 52 19 65 33 57 64 51 49 25 19 18 64 46 20 71 8 39	2758 2500 2681 2566 2408 2493
30	SUN W. Pollux W. Venus W. Regulus W. Saturn E. Antares E.	115 47 13 73 58 28 72 55 37 37 39 35 56 11 27 62 44 3	2804 2535 2718 2467 2451 2544	117 21 35 75 38 53 74 31 53 39 21 35 54 29 4 61 3 51	2814 2542 2726 2475 2460 2556	118 55 44 77 19 8 76 7 59 41 3 23 52 46 55 59 23 55	2824 2550 2733 2484 2469 2567	120 29 41 78 59 12 77 43 55 42 44 59 51 4 58 57 44 14	2834 2557 2741 2492 2477 2578
31	SUN W. Pollux W. Venus W. Regulus W. Saturn E. Antares E.	128 16 14 87 16 53 85 41 3 51 10 4 42 38 20 49 29 58	2884 2598 2779 2534 2522 2642	129 48 54 88 55 51 87 15 58 52 50 30 40 57 38 47 52 0	2894 2605 2787 2543 2532 2656	131 21 21 90 34 39 88 50 43 54 30 43 39 17 10 46 14 21	2904 2614 2795 2551 2541 2672	132 53 35 92 13 15 90 25 17 56 10 46 37 36 54 44 37 3	2915 2623 2803 2560 2551 2687

Day of the Month.	AIRY's Day Numbers— For correcting the Places of the Fixed Stars.					Mean Time of Transit of the First Point of Aries.
	At Mean Midnight,					
	Logarithms of				Value of L	
	E	F	G	H		
1	1°04252	1°05540	0°12796	1°51988	109°842	h m s 21 17 44·11
2	1°05084	1°04552	0°12873	1°52007	109°816	21 13 48·20
3	1°05915	1°03556	0°12950	1°52026	109°780	21 9 52·30
4	1°06745	1°02555	0°13028	1°52045	109°735	21 5 56·39
5	1°07573	1°01548	0°13107	1°52064	109°678	21 2 0·48
6	1°08399	1°00535	0°13188	1°52082	109°610	20 58 4·57
7	1°09222	0°99518	0°13269	1°52101	109°534	20 54 8·66
8	1°10041	0°98496	0°13350	1°52120	109°447	20 50 12·76
9	1°10856	0°97471	0°13432	1°52138	109°348	20 46 16·85
10	1°11668	0°96441	0°13515	1°52156	109°242	20 42 20·94
11	1°12475	0°95408	0°13599	1°52174	109°125	20 38 25·03
12	1°13278	0°94373	0°13683	1°52192	108°996	20 34 29·12
13	1°14077	0°93337	0°13768	1°52210	108°861	20 30 33·21
14	1°14870	0°92300	0°13854	1°52227	108°715	20 26 37·30
15	1°15658	0°91263	0°13940	1°52244	108°557	20 22 41·39
16	1°16442	0°90226	0°14027	1°52261	108°392	20 18 45·48
17	1°17219	0°89191	0°14115	1°52278	108°216	20 14 49·57
18	1°17990	0°88159	0°14204	1°52294	108°028	20 10 53·66
19	1°18756	0°87130	0°14293	1°52310	107°834	20 6 57·75
20	1°19515	0°86107	0°14383	1°52325	107°630	20 3 1·84
21	1°20268	0°85089	0°14473	1°52340	107°415	19 59 5·93
22	1°21016	0°84079	0°14564	1°52355	107°193	19 55 10·02
23	1°21757	0°83080	0°14655	1°52369	106°961	19 51 14·11
24	1°22491	0°82091	0°14747	1°52382	106°719	19 47 18·20
25	1°23220	0°81113	0°14840	1°52395	106°469	19 43 22·29
26	1°23941	0°80149	0°14933	1°52408	106°209	19 39 26·38
27	1°24654	0°79199	0°15026	1°52420	105°940	19 35 30·47
28	1°25363	0°78267	0°15120	1°52432	105°664	19 31 34·56
29	1°26064	0°77353	0°15214	1°52443	105°379	19 27 38·65
30	1°26756	0°76459	0°15308	1°52452	105°085	19 23 42·74
31	1°27443	0°75588	0°15403	1°52461	104°784	19 19 46·83
32	1°28122	0°74742	0°15498	1°52470	104°474	19 15 50·92

Day of the Month.	BESSEL's Day Numbers— For correcting the Places of the Fixed Stars.				Days elapsed of the Julian Period at Mean Noon.	Mean Equinoctial Time, adding 6 ^d . 269681.	From Mean Noon of January 1.	
	At Mean Midnight,						Day of the Year.	Fraction of the Year.*
	Logarithms of							
	A	B	C	D		Days.		
1	—1°1452	—1°1348	+9°1542	+0°9087	2403454	40	121	°3313
2	1°1386	1°1429	9°1614	0°9095	2403455	41	122	°3340
3	1°1316	1°1507	9°1685	0°9102	2403456	42	123	°3368
4	—1°1245	—1°1582	+9°1756	+0°9110	2403457	43	124	°3395
5	1°1171	1°1655	9°1827	0°9118	2403458	44	125	°3422
6	1°1095	1°1725	9°1898	0°9125	2403459	45	126	°3450
7	—1°1016	—1°1793	+9°1968	+0°9133	2403460	46	127	°3477
8	1°0934	1°1858	9°2037	0°9141	2403461	47	128	°3504
9	1°0849	1°1922	9°2107	0°9148	2403462	48	129	°3532
10	—1°0762	—1°1983	+9°2176	+0°9155	2403463	49	130	°3559
11	1°0672	1°2042	9°2244	0°9163	2403464	50	131	°3587
12	1°0578	1°2099	9°2313	0°9170	2403465	51	132	°3614
13	—1°0481	—1°2154	+9°2381	+0°9177	2403466	52	133	°3641
14	1°0381	1°2208	9°2449	0°9184	2403467	53	134	°3669
15	1°0277	1°2259	9°2516	0°9191	2403468	54	135	°3696
16	—1°0170	—1°2308	+9°2582	+0°9198	2403469	55	136	°3724
17	1°0058	1°2356	9°2649	0°9204	2403470	56	137	°3751
18	0°9942	1°2402	9°2716	0°9211	2403471	57	138	°3778
19	—0°9822	—1°2446	+9°2782	+0°9217	2403472	58	139	°3806
20	0°9698	1°2489	9°2847	0°9223	2403473	59	140	°3833
21	0°9568	1°2530	9°2912	0°9229	2403474	60	141	°3860
22	—0°9433	—1°2569	+9°2976	+0°9235	2403475	61	142	°3888
23	0°9293	1°2607	9°3040	0°9240	2403476	62	143	°3915
24	0°9146	1°2643	9°3104	0°9246	2403477	63	144	°3943
25	—0°8994	—1°2678	+9°3167	+0°9251	2403478	64	145	°3970
26	0°8834	1°2711	9°3230	0°9256	2403479	65	146	°3997
27	0°8668	1°2743	9°3292	0°9260	2403480	66	147	°4025
28	—0°8493	—1°2773	+9°3353	+0°9265	2403481	67	148	°4052
29	0°8311	1°2802	9°3414	0°9269	2403482	68	149	°4079
30	0°8118	1°2830	9°3475	0°9273	2403483	69	150	°4107
31	0°7916	1°2856	9°3535	0°9277	2403484	70	151	°4134
32	—0°7703	—1°2880	+9°3595	+0°9281	2403485	71	152	°4162

* Add .0012 if Fraction be required for the time *t*, see page 329.

* Add .0012 if Fraction be required for the time 4, see page 329.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be <i>subt. from</i> added to <i>Apparent Time.</i>	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
		^h ^m ^s	^s	[°] ['] ["]	["]	^m ^s	^m ^s	^s
Mon.	1	4 38 34.79	10.235	N.22 8 6.2	19.87	I 8.43	2 24.03	0.377
Tues.	2	4 42 40.62	10.251	22 15 51.8	18.91	I 8.48	2 14.78	0.393
Wed.	3	4 46 46.83	10.266	22 23 14.1	17.94	I 8.53	2 5.15	0.409
Thur.	4	4 50 53.39	10.280	22 30 12.9	16.96	I 8.58	1 55.17	0.423
Frid.	5	4 55 0.28	10.294	22 36 48.0	15.97	I 8.63	1 44.86	0.436
Sat.	6	4 59 7.50	10.308	22 42 59.4	14.98	I 8.67	1 34.23	0.450
Sun.	7	5 3 15.04	10.320	22 48 47.0	13.98	I 8.71	1 23.28	0.463
Mon.	8	5 7 22.87	10.332	22 54 10.6	12.98	I 8.75	1 12.03	0.474
Tues.	9	5 11 30.96	10.342	22 59 10.1	11.97	I 8.79	1 0.52	0.485
Wed.	10	5 15 39.30	10.352	23 3 45.3	10.96	I 8.82	0 48.77	0.495
Thur.	11	5 19 47.88	10.362	23 7 56.3	9.95	I 8.85	0 36.78	0.504
Frid.	12	5 23 56.68	10.371	23 11 42.8	8.93	I 8.87	0 24.58	0.513
Sat.	13	5 28 5.67	10.378	23 15 4.9	7.91	I 8.89	0 12.18	0.520
Sun.	14	5 32 14.84	10.385	23 18 2.4	6.88	I 8.91	0 0.39	0.527
Mon.	15	5 36 24.15	10.391	23 20 35.2	5.85	I 8.93	0 13.11	0.533
Tues.	16	5 40 33.59	10.395	23 22 43.4	4.83	I 8.94	0 25.95	0.537
Wed.	17	5 44 43.13	10.399	23 24 26.9	3.80	I 8.95	0 38.90	0.541
Thur.	18	5 48 52.75	10.402	23 25 45.6	2.76	I 8.96	0 51.94	0.544
Frid.	19	5 53 2.42	10.404	23 26 39.5	1.73	I 8.96	1 5.02	0.545
Sat.	20	5 57 12.12	10.404	23 27 8.6	0.70	I 8.96	1 18.12	0.546
Sun.	21	6 1 21.81	10.403	23 27 13.0	0.33	I 8.96	1 31.21	0.545
Mon.	22	6 5 31.45	10.400	23 26 52.6	1.37	I 8.95	1 44.27	0.543
Tues.	23	6 9 41.02	10.397	23 26 7.4	2.40	I 8.94	1 57.25	0.539
Wed.	24	6 13 50.49	10.392	23 24 57.5	3.43	I 8.93	2 10.12	0.534
Thur.	25	6 17 59.84	10.386	23 23 22.8	4.46	I 8.91	2 22.87	0.528
Frid.	26	6 22 9.03	10.379	23 21 23.4	5.49	I 8.89	2 35.47	0.521
Sat.	27	6 26 18.04	10.371	23 18 59.3	6.52	I 8.87	2 47.89	0.514
Sun.	28	6 30 26.85	10.363	23 16 10.7	7.54	I 8.85	3 0.12	0.505
Mon.	29	6 34 35.46	10.354	23 12 57.6	8.55	I 8.82	3 12.13	0.496
Tues.	30	6 38 43.83	10.343	23 9 20.1	9.57	I 8.79	3 23.91	0.486
Wed.	31	6 42 51.94	10.332	N.23 5 18.3	10.58	I 8.75	3 35.44	0.475

*Mean Time of the Semidiameter passing may be found by subtracting 0.19 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be added to subt. from Mean Time.	Sidereal Time.
		Apparent Right Ascension.	Apparent Declination.	Semidiam.*		
		^h ^m ^s	[°] ['] ["]	['] ["]	^m ^s	^h ^m ^s
Mon.	1	4 38 35.19	N.22 8 7.0	15 48.1	2 24.01	4 40 59.20
Tues.	2	4 42 41.00	22 15 52.5	15 47.9	2 14.76	4 44 55.76
Wed.	3	4 46 47.19	22 23 14.7	15 47.8	2 5.13	4 48 52.32
Thur.	4	4 50 53.72	22 30 13.4	15 47.7	1 55.15	4 52 48.87
Frid.	5	4 55 0.58	22 36 48.5	15 47.6	1 44.85	4 56 45.43
Sat.	6	4 59 7.77	22 42 59.8	15 47.5	1 34.22	5 0 41.99
Sun.	7	5 3 15.28	22 48 47.3	15 47.4	1 23.27	5 4 38.55
Mon.	8	5 7 23.08	22 54 10.8	15 47.3	1 12.02	5 8 35.10
Tues.	9	5 11 31.14	22 59 10.3	15 47.2	1 0.51	5 12 31.65
Wed.	10	5 15 39.45	23 3 45.5	15 47.1	0 48.76	5 16 28.21
Thur.	11	5 19 47.99	23 7 56.4	15 47.0	0 36.78	5 20 24.77
Frid.	12	5 23 56.75	23 11 42.9	15 46.9	0 24.58	5 24 21.33
Sat.	13	5 28 5.71	23 15 4.9	15 46.8	0 12.18	5 28 17.89
Sun.	14	5 32 14.84	23 18 2.4	15 46.7	0 0.39	5 32 14.45
Mon.	15	5 36 24.11	23 20 35.2	15 46.6	0 13.11	5 36 11.00
Tues.	16	5 40 33.51	23 22 43.4	15 46.5	0 25.95	5 40 7.56
Wed.	17	5 44 43.02	23 24 26.8	15 46.4	0 38.90	5 44 4.12
Thur.	18	5 48 52.60	23 25 45.5	15 46.4	0 51.93	5 48 0.67
Frid.	19	5 53 2.23	23 26 39.4	15 46.3	1 5.01	5 51 57.22
Sat.	20	5 57 11.89	23 27 8.6	15 46.2	1 18.11	5 55 53.78
Sun.	21	6 1 21.54	23 27 13.0	15 46.1	1 31.20	5 59 50.34
Mon.	22	6 5 31.15	23 26 52.6	15 46.1	1 44.25	6 3 46.90
Tues.	23	6 9 40.68	23 26 7.5	15 46.1	1 57.23	6 7 43.45
Wed.	24	6 13 50.11	23 24 57.6	15 46.1	2 10.10	6 11 40.01
Thur.	25	6 17 59.42	23 23 23.0	15 46.1	2 22.85	6 15 36.57
Frid.	26	6 22 8.57	23 21 23.6	15 46.0	2 35.45	6 19 33.12
Sat.	27	6 26 17.55	23 18 59.6	15 46.0	2 47.87	6 23 29.68
Sun.	28	6 30 26.33	23 16 11.1	15 46.0	3 0.09	6 27 26.24
Mon.	29	6 34 34.90	23 12 58.1	15 46.0	3 12.10	6 31 22.80
Tues.	30	6 38 43.24	23 9 20.7	15 46.0	3 23.88	6 35 19.36
Wed.	31	6 42 51.32	N.23 5 18.9	15 46.0	3 35.41	6 39 15.91

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	71° 12' 19".9	N. 0° 68'	0.0062558	15' 38".8	15' 34".7	57' 19".4	57' 4".4
2	72° 9' 45".3	0° 75'	0.0063141	15' 30".6	15' 26".5	56' 49".3	56' 34".4
3	73° 7' 9".7	0° 79'	0.0063710	15' 22".4	15' 18".4	56' 19".5	56' 4".8
4	74° 4' 33".1	0° 80'	0.0064266	15' 14".5	15' 10".7	55' 50".4	55' 36".4
5	75° 1' 55".6	0° 77'	0.0064809	15' 7".0	15' 3".4	55' 22".8	55' 9".9
6	75° 59' 17".2	0° 73'	0.0065340	15' 0".1	14' 57".0	54' 57".7	54' 46".5
7	76° 56' 38".1	0° 66'	0.0065858	14' 54".3	14' 51".9	54' 36".4	54' 27".6
8	77° 53' 58".3	0° 57'	0.0066361	14' 49".9	14' 48".3	54' 20".3	54' 14".6
9	78° 51' 17".9	0° 47'	0.0066850	14' 47".3	14' 46".7	54' 10".7	54' 8".8
10	79° 48' 36".9	0° 36'	0.0067323	14' 46".8	14' 47".5	54' 9".1	54' 11".6
11	80° 45' 55".4	0° 25'	0.0067779	14' 48".8	14' 50".8	54' 16".4	54' 23".6
12	81° 43' 13".5	0° 13'	0.0068219	14' 53".5	14' 56".8	54' 33".4	54' 45".6
13	82° 40' 31".1	N. 0° 01'	0.0068640	15' 0".8	15' 5".4	55' 0".3	55' 17".3
14	83° 37' 48".4	S. 0° 09'	0.0069041	15' 10".7	15' 16".6	55' 36".6	55' 58".0
15	84° 35' 5".4	0° 17'	0.0069421	15' 22".9	15' 29".6	56' 21".2	56' 45".9
16	85° 32' 22".2	0° 24'	0.0069780	15' 36".7	15' 44".0	57' 11".8	57' 38".4
17	86° 29' 38".7	0° 29'	0.0070115	15' 51".3	15' 58".5	58' 5".3	58' 31".7
18	87° 26' 54".9	0° 30'	0.0070424	16' 5".5	16' 12".0	58' 57".2	59' 21".2
19	88° 24' 10".9	0° 28'	0.0070708	16' 18".0	16' 23".2	59' 43".0	60' 2".1
20	89° 21' 26".6	0° 23'	0.0070966	16' 27".5	16' 30".8	60' 17".9	60' 30".1
21	90° 18' 42".0	0° 15'	0.0071197	16' 33".0	16' 34".2	60' 38".3	60' 42".4
22	91° 15' 56".9	S. 0° 04'	0.0071402	16' 34".2	16' 33".1	60' 42".5	60' 38".6
23	92° 13' 11".3	N. 0° 10'	0.0071579	16' 31".0	16' 28".1	60' 30".9	60' 20".0
24	93° 10' 25".1	0° 24'	0.0071730	16' 24".3	16' 19".8	60' 6".2	59' 49".9
25	94° 7' 38".3	0° 38'	0.0071858	16' 14".9	16' 9".6	59' 31".8	59' 12".3
26	95° 4' 51".0	0° 50'	0.0071962	16' 4".0	15' 58".3	58' 51".9	58' 30".9
27	96° 2' 3".2	0° 61'	0.0072045	15' 52".5	15' 46".9	58' 9".8	57' 49".0
28	96° 59' 14".9	0° 70'	0.0072108	15' 41".3	15' 35".8	57' 28".5	57' 8".7
29	97° 56' 26".3	0° 76'	0.0072152	15' 30".7	15' 25".7	56' 49".7	56' 31".5
30	98° 53' 37".4	0° 80'	0.0072178	15' 21".0	15' 16".6	56' 14".3	55' 58".1
31	99° 50' 48".2	N. 0° 81'	0.0072188	15' 12".4	15' 8".5	55' 42".8	55' 28".5

MEAN TIME.

THE MOON'S

Day of the Week.	Day of the Month.	THE MOON'S					
		Longitude.		Latitude.		Age.	Meridian
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.
		^o ['] ["]	^o ['] ["]	^o ['] ["]	^o ['] ["]	^d	^h ^m
Mon.	1	205 46 55.5	212 25 7.5	N.4 11 2.9	N.4 28 42.2	10.2	9 18.9
Tues.	2	219 0 29.0	225 32 56.0	4 42 37.5	4 52 42.6	11.2	10 7.5
Wed.	3	232 2 23.9	238 28 47.9	4 58 54.7	5 1 14.2	12.2	10 56.6
Thur.	4	244 52 3.8	251 12 8.0	4 59 44.6	4 54 33.2	13.2	11 46.2
Frid.	5	257 28 58.7	263 42 36.6	4 45 48.4	4 33 41.7	14.2	12 36.0
Sat.	6	269 53 4.7	276 0 29.6	4 18 26.5	4 0 17.6	15.2	13 25.6
Sun.	7	282 5 0.8	288 6 51.5	3 39 30.7	3 16 22.8	16.2	14 14.4
Mon.	8	294 6 18.7	300 3 43.0	2 51 10.8	2 24 12.2	17.2	15 2.1
Tues.	9	305 59 28.2	311 54 1.8	1 55 44.6	1 26 5.3	18.2	15 48.3
Wed.	10	317 47 54.1	323 41 38.4	N.0 55 31.9	N.0 24 21.4	19.2	16 33.3
Thur.	11	329 35 50.1	335 31 7.0	S.0 7 9.0	S.0 38 41.7	20.2	17 17.2
Frid.	12	341 28 8.2	347 27 33.6	1 9 59.3	1 40 43.6	21.2	18 0.8
Sat.	13	353 30 3.9	359 36 19.1	2 10 36.4	2 39 18.1	22.2	18 44.5
Sun.	14	5 46 58.1	12 2 37.9	3 6 28.5	3 31 46.6	23.2	19 29.3
Mon.	15	18 23 51.9	24 51 9.2	3 54 50.1	4 15 16.3	24.2	20 16.0
Tues.	16	31 24 53.1	38 5 20.0	4 32 42.0	4 46 43.7	25.2	21 5.5
Wed.	17	44 52 37.9	51 46 44.9	4 56 58.8	5 3 6.6	26.2	21 58.4
Thur.	18	58 47 28.8	65 54 26.8	5 4 48.9	5 1 51.7	27.2	22 54.9
Frid.	19	73 7 4.9	80 24 39.1	4 54 5.7	4 41 28.4	28.2	23 54.5
Sat.	20	87 46 17.0	95 10 58.7	4 24 4.3	4 2 5.9	29.2	6
Sun.	21	102 37 40.6	110 5 17.3	3 35 53.6	3 5 54.5	0.9	0 55.9
Mon.	22	117 32 44.7	124 59 2.2	2 32 42.8	1 56 57.3	1.9	1 57.4
Tues.	23	132 23 15.2	139 44 36.8	1 19 20.5	S.0 40 35.8	2.9	2 57.1
Wed.	24	147 2 28.6	154 16 20.6	S.0 1 27.0	N.0 37 23.7	3.9	3 54.0
Thur.	25	161 25 51.7	168 30 48.8	N.1 15 16.9	1 51 37.0	4.9	4 48.0
Frid.	26	175 31 5.5	182 26 41.3	2 25 52.2	2 57 35.2	5.9	5 39.4
Sat.	27	189 17 40.5	196 4 10.5	3 26 23.1	3 51 56.9	6.9	6 28.9
Sun.	28	202 46 21.2	209 24 23.8	4 14 2.0	4 32 27.3	7.9	7 17.3
Mon.	29	215 58 30.1	222 28 52.2	4 47 4.9	4 57 50.7	8.9	8 5.3
Tues.	30	228 55 41.3	235 19 8.4	5 4 42.7	5 7 42.2	9.9	8 53.6
Wed.	31	241 39 23.5	247 56 35.5	N.5 6 52.7	N.5 2 20.2	10.9	9 42.3

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 1.				WEDNESDAY 3.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	13 41 43.03	S. 6 4 7.1	104.55	0	15 23 45.77	S. 13 28 16.6	77.65
1	13 43 50.00	6 14 33.3	104.18	1	15 25 54.37	13 36 0.3	76.91
2	13 45 56.97	6 24 57.3	103.80	2	15 28 3.02	13 43 39.5	76.17
3	13 48 3.94	6 35 18.9	103.40	3	15 30 11.72	13 51 14.3	75.43
4	13 50 10.92	6 45 38.1	103.00	4	15 32 20.47	13 58 44.7	74.68
5	13 52 17.91	6 55 54.9	102.59	5	15 34 29.28	14 6 10.5	73.93
6	13 54 24.90	7 6 9.2	102.17	6	15 36 38.13	14 13 31.8	73.16
7	13 56 31.91	7 16 20.9	101.73	7	15 38 47.04	14 20 48.4	72.40
8	13 58 38.92	7 26 30.0	101.30	8	15 40 56.00	14 28 0.5	71.63
9	14 0 45.95	7 36 36.5	100.87	9	15 43 5.01	14 35 7.9	70.84
10	14 2 53.00	7 46 40.4	100.42	10	15 45 14.07	14 42 10.6	70.05
11	14 5 0.06	7 56 41.5	99.95	11	15 47 23.18	14 49 8.5	69.26
12	14 7 7.14	8 6 39.8	99.48	12	15 49 32.33	14 56 1.7	68.47
13	14 9 14.24	8 16 35.3	99.01	13	15 51 41.54	15 2 50.2	67.67
14	14 11 21.37	8 26 27.9	98.52	14	15 53 50.79	15 9 33.8	66.87
15	14 13 28.52	8 36 17.5	98.03	15	15 56 0.10	15 16 12.6	66.06
16	14 15 35.69	8 46 4.2	97.53	16	15 58 9.45	15 22 46.5	65.24
17	14 17 42.90	8 55 47.8	97.02	17	16 0 18.84	15 29 15.5	64.42
18	14 19 50.13	9 5 28.4	96.51	18	16 2 28.28	15 35 39.5	63.59
19	14 21 57.39	9 15 5.9	95.98	19	16 4 37.77	15 41 58.6	62.77
20	14 24 4.69	9 24 40.2	95.43	20	16 6 47.30	15 48 12.7	61.93
21	14 26 12.01	9 34 11.3	94.91	21	16 8 56.88	15 54 21.7	61.08
22	14 28 19.36	9 43 39.1	94.36	22	16 11 6.50	16 0 25.7	60.24
23	14 30 26.76	S. 9 53 3.6	93.81	23	16 13 16.15	S. 16 6 24.6	59.39
TUESDAY 2.				THURSDAY 4.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	14 32 34.19	S. 10 2 24.8	93.25	0	16 15 25.85	S. 16 12 18.4	58.53
1	14 34 41.66	10 11 42.6	92.68	1	16 17 35.59	16 18 7.0	57.68
2	14 36 49.16	10 20 57.0	92.10	2	16 19 45.37	16 23 50.5	56.82
3	14 38 56.71	10 30 7.8	91.52	3	16 21 55.18	16 29 28.8	55.95
4	14 41 4.30	10 39 15.2	90.93	4	16 24 5.03	16 35 1.9	55.08
5	14 43 11.92	10 48 19.0	90.33	5	16 26 14.91	16 40 29.7	54.20
6	14 45 19.59	10 57 19.2	89.73	6	16 28 24.83	16 45 52.3	53.32
7	14 47 27.31	11 6 15.7	89.11	7	16 30 34.78	16 51 9.6	52.44
8	14 49 35.07	11 15 8.5	88.49	8	16 32 44.76	16 56 21.6	51.56
9	14 51 42.87	11 23 57.6	87.87	9	16 34 54.78	17 1 28.3	50.67
10	14 53 50.72	11 32 42.9	87.23	10	16 37 4.82	17 6 29.6	49.77
11	14 55 58.62	11 41 24.3	86.58	11	16 39 14.89	17 11 25.5	48.88
12	14 58 6.57	11 50 1.9	85.94	12	16 41 24.98	17 16 16.1	47.98
13	15 0 14.56	11 58 35.6	85.28	13	16 43 35.10	17 21 1.3	47.08
14	15 2 22.60	12 7 5.3	84.62	14	16 45 45.24	17 25 41.1	46.18
15	15 4 30.70	12 15 31.0	83.95	15	16 47 55.40	17 30 15.4	45.27
16	15 6 38.84	12 23 52.7	83.28	16	16 50 5.58	17 34 44.3	44.35
17	15 8 47.02	12 32 10.4	82.60	17	16 52 15.78	17 39 7.6	43.43
18	15 10 55.26	12 40 23.9	81.91	18	16 54 25.99	17 43 25.5	42.52
19	15 13 3.55	12 48 33.3	81.22	19	16 56 36.22	17 47 37.9	41.60
20	15 15 11.89	12 56 38.5	80.51	20	16 58 46.46	17 51 44.7	40.68
21	15 17 20.29	13 4 39.4	79.80	21	17 0 56.71	17 55 46.0	39.76
22	15 19 28.73	13 12 36.1	79.09	22	17 3 6.97	17 59 41.8	38.83
23	15 21 37.22	13 20 28.5	78.38	23	17 5 17.24	18 3 31.9	37.89
24	15 23 45.77	S. 13 28 16.6	77.65	24	17 7 27.51	S. 18 7 16.5	36.97

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 5.				SUNDAY 7.			
0	h m s 17 7 27.51	S. 18° 7' 16.5"	36.97	0	h m s 18 51 8.46	S. 19° 15' 37.5"	8.39
1	17 9 37.79	18 10 55.5	36.03	1	18 53 16.56	19 14 44.4	9.31
2	17 11 48.07	18 14 28.9	35.09	2	18 55 24.57	19 13 45.8	10.23
3	17 13 58.35	18 17 56.6	34.16	3	18 57 32.49	19 12 41.7	11.14
4	17 16 8.63	18 21 18.8	33.23	4	18 59 40.30	19 11 32.1	12.06
5	17 18 18.91	18 24 35.3	32.28	5	19 1 48.02	19 10 17.0	12.97
6	17 20 29.18	18 27 46.1	31.33	6	19 3 55.64	19 8 56.5	13.87
7	17 22 39.44	18 30 51.3	30.39	7	19 6 3.16	19 7 30.6	14.77
8	17 24 49.69	18 33 50.8	29.45	8	19 8 10.57	19 5 59.2	15.68
9	17 26 59.93	18 36 44.7	28.50	9	19 10 17.88	19 4 22.4	16.58
10	17 29 10.16	18 39 32.8	27.55	10	19 12 25.08	19 2 40.3	17.47
11	17 31 20.37	18 42 15.3	26.61	11	19 14 32.18	19 0 52.8	18.37
12	17 33 30.56	18 44 52.1	25.66	12	19 16 39.16	18 58 59.9	19.26
13	17 35 40.73	18 47 23.2	24.70	13	19 18 46.04	18 57 1.7	20.14
14	17 37 50.89	18 49 48.5	23.75	14	19 20 52.80	18 54 58.2	21.02
15	17 40 1.02	18 52 8.2	22.80	15	19 22 59.45	18 52 49.4	21.91
16	17 42 11.12	18 54 22.1	21.85	16	19 25 5.99	18 50 35.3	22.78
17	17 44 21.20	18 56 30.4	20.90	17	19 27 12.41	18 48 16.0	23.66
18	17 46 31.24	18 58 32.9	19.93	18	19 29 18.71	18 45 51.4	24.53
19	17 48 41.25	19 0 29.6	18.98	19	19 31 24.89	18 43 21.7	25.38
20	17 50 51.23	19 2 20.7	18.03	20	19 33 30.96	18 40 46.8	26.25
21	17 53 1.18	19 4 6.0	17.08	21	19 35 36.90	18 38 6.7	27.12
22	17 55 11.08	19 5 45.6	16.13	22	19 37 42.73	18 35 21.4	27.97
23	17 57 20.95	S. 19° 7' 19.5"	15.17	23	19 39 48.43	S. 18° 32' 31.1"	28.81
SATURDAY 6.				MONDAY 8.			
0	17 59 30.77	S. 19° 8' 47.6"	14.21	0	19 41 54.01	S. 18° 29' 35.6"	29.67
1	18 1 40.55	19 10 10.0	13.26	1	19 43 59.47	18 26 35.1	30.51
2	18 3 50.28	19 11 26.7	12.31	2	19 46 4.80	18 23 29.5	31.35
3	18 5 59.97	19 12 37.7	11.35	3	19 48 10.00	18 20 18.9	32.18
4	18 8 9.60	19 13 42.9	10.40	4	19 50 15.08	18 17 3.3	33.02
5	18 10 19.18	19 14 42.5	9.45	5	19 52 20.03	18 13 42.7	33.85
6	18 12 28.71	19 15 36.3	8.49	6	19 54 24.85	18 10 17.1	34.68
7	18 14 38.18	19 16 24.4	7.55	7	19 56 29.54	18 6 46.6	35.49
8	18 16 47.59	19 17 6.9	6.60	8	19 58 34.11	18 3 11.2	36.31
9	18 18 56.94	19 17 43.6	5.65	9	20 0 38.54	17 59 30.9	37.12
10	18 21 6.22	19 18 14.7	4.70	10	20 2 42.84	17 55 45.8	37.93
11	18 23 15.44	19 18 40.0	3.75	11	20 4 47.01	17 51 55.8	38.72
12	18 25 24.59	19 18 59.7	2.82	12	20 6 51.04	17 48 1.1	39.52
13	18 27 33.67	19 19 13.8	1.88	13	20 8 54.95	17 44 1.5	40.33
14	18 29 42.68	19 19 22.2	0.93	14	20 10 58.72	17 39 57.2	41.12
15	18 31 51.62	19 19 24.9	0.01	15	20 13 2.36	17 35 48.1	41.91
16	18 34 0.49	19 19 22.1	0.94	16	20 15 5.86	17 31 34.3	42.68
17	18 36 9.27	19 19 13.6	1.88	17	20 17 9.24	17 27 15.9	43.46
18	18 38 17.98	19 18 59.5	2.83	18	20 19 12.48	17 22 52.8	44.24
19	18 40 26.60	19 18 39.7	3.76	19	20 21 15.58	17 18 25.0	45.01
20	18 42 35.15	19 18 14.4	4.68	20	20 23 18.55	17 13 52.7	45.77
21	18 44 43.61	19 17 43.6	5.61	21	20 25 21.39	17 9 15.8	46.53
22	18 46 51.98	19 17 7.1	6.54	22	20 27 24.10	17 4 34.4	47.28
23	18 49 0.27	19 16 25.1	7.47	23	20 29 26.67	16 59 48.4	48.03
24	18 51 8.46	S. 19° 15' 37.5"	8.39	24	20 31 29.10	S. 16° 54' 58.0"	48.77

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 9.				THURSDAY 11.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	20 31 29.10	S. 16 54 58.0	48.77	0	22 6 59.96	S. 11 43 54.7	78.97
1	20 33 31.40	16 50 3.1	49.52	1	22 8 56.76	11 35 59.3	79.48
2	20 35 33.57	16 45 3.8	50.26	2	22 10 53.47	11 28 0.9	79.98
3	20 37 35.61	16 40 0.0	50.99	3	22 12 50.11	11 19 59.5	80.49
4	20 39 37.51	16 34 51.9	51.72	4	22 14 46.67	11 11 55.0	80.99
5	20 41 39.28	16 29 39.4	52.44	5	22 16 43.16	11 3 47.6	81.48
6	20 43 40.92	16 24 22.6	53.16	6	22 18 39.57	10 55 37.3	81.96
7	20 45 42.42	16 19 1.5	53.87	7	22 20 35.92	10 47 24.1	82.44
8	20 47 43.79	16 13 36.2	54.58	8	22 22 32.20	10 39 8.0	82.93
9	20 49 45.03	16 8 6.6	55.28	9	22 24 28.41	10 30 49.0	83.40
10	20 51 46.14	16 2 32.8	55.98	10	22 26 24.56	10 22 27.3	83.85
11	20 53 47.12	15 56 54.8	56.68	11	22 28 20.66	10 14 2.8	84.32
12	20 55 47.96	15 51 12.7	57.37	12	22 30 16.69	10 5 35.5	84.78
13	20 57 48.68	15 45 26.4	58.05	13	22 32 12.67	9 57 5.5	85.22
14	20 59 49.27	15 39 36.1	58.74	14	22 34 8.59	9 48 32.8	85.68
15	21 1 49.73	15 33 41.6	59.42	15	22 36 4.46	9 39 57.4	86.12
16	21 3 50.06	15 27 43.1	60.08	16	22 38 0.28	9 31 19.4	86.55
17	21 5 50.27	15 21 40.7	60.74	17	22 39 56.06	9 22 38.8	86.98
18	21 7 50.36	15 15 34.2	61.41	18	22 41 51.79	9 13 55.6	87.41
19	21 9 50.31	15 9 23.8	62.07	19	22 43 47.47	9 5 9.9	87.83
20	21 11 50.14	15 3 9.4	62.72	20	22 45 43.12	8 56 21.7	88.25
21	21 13 49.85	14 56 51.2	63.36	21	22 47 38.73	8 47 30.9	88.67
22	21 15 49.44	14 50 29.1	64.00	22	22 49 34.30	8 38 37.7	89.07
23	21 17 48.91	S. 14 44 3.2	64.63	23	22 51 29.84	S. 8 29 42.1	89.47
WEDNESDAY 10.				FRIDAY 12.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	21 19 48.25	S. 14 37 33.5	65.27	0	22 53 25.35	S. 8 20 44.1	89.87
1	21 21 47.48	14 31 0.0	65.89	1	22 55 20.83	8 11 43.7	90.26
2	21 23 46.59	14 24 22.8	66.52	2	22 57 16.29	8 2 41.0	90.64
3	21 25 45.58	14 17 41.8	67.14	3	22 59 11.73	7 53 36.0	91.03
4	21 27 44.46	14 10 57.1	67.75	4	23 1 7.14	7 44 28.7	91.41
5	21 29 43.22	14 4 8.8	68.35	5	23 3 2.54	7 35 19.1	91.78
6	21 31 41.87	13 57 16.9	68.95	6	23 4 57.93	7 26 7.3	92.15
7	21 33 40.41	13 50 21.4	69.55	7	23 6 53.30	7 16 53.3	92.51
8	21 35 38.84	13 43 22.3	70.15	8	23 8 48.66	7 7 37.2	92.86
9	21 37 37.16	13 36 19.6	70.74	9	23 10 44.02	6 58 19.0	93.22
10	21 39 35.37	13 29 13.4	71.32	10	23 12 39.38	6 48 58.6	93.57
11	21 41 33.48	13 22 3.8	71.89	11	23 14 34.73	6 39 36.2	93.91
12	21 43 31.48	13 14 50.7	72.47	12	23 16 30.08	6 30 11.7	94.25
13	21 45 29.38	13 7 34.2	73.03	13	23 18 25.44	6 20 45.2	94.58
14	21 47 27.18	13 0 14.3	73.60	14	23 20 20.81	6 11 16.8	94.90
15	21 49 24.88	12 52 51.0	74.17	15	23 22 16.19	6 1 46.4	95.23
16	21 51 22.48	12 45 24.3	74.72	16	23 24 11.59	5 52 14.0	95.55
17	21 53 19.98	12 37 54.4	75.26	17	23 26 7.00	5 42 39.8	95.85
18	21 55 17.39	12 30 21.2	75.81	18	23 28 2.43	5 33 3.8	96.16
19	21 57 14.71	12 22 44.7	76.35	19	23 29 57.88	5 23 25.9	96.47
20	21 59 11.94	12 15 5.0	76.88	20	23 31 53.36	5 13 46.2	96.77
21	22 1 9.07	12 7 22.2	77.40	21	23 33 48.86	5 4 4.7	97.06
22	22 3 6.12	11 59 36.2	77.93	22	23 35 44.40	4 54 21.5	97.33
23	22 5 3.08	11 51 47.0	78.46	23	23 37 39.97	4 44 36.7	97.62
24	22 6 59.96	S. 11 43 54.7	78.97	24	23 39 35.58	S. 4 34 50.1	97.90

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
SATURDAY 13.				MONDAY 15.			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	23 39 35.58	S. 4 34 50.1	97.90	0	1 13 50.51	N. 3 35 42.5	104.04
1	23 41 31.23	4 25 1.9	98.17	1	1 15 51.86	3 46 6.6	104.00
2	23 43 26.92	4 15 12.1	98.43	2	1 17 53.41	3 56 30.5	103.96
3	23 45 22.66	4 5 20.8	98.68	3	1 19 55.16	4 6 54.1	103.91
4	23 47 18.44	3 55 27.9	98.94	4	1 21 57.12	4 17 17.3	103.84
5	23 49 14.28	3 45 33.5	99.19	5	1 23 59.29	4 27 40.1	103.76
6	23 51 10.18	3 35 37.6	99.43	6	1 26 1.68	4 38 2.4	103.67
7	23 53 6.13	3 25 40.3	99.67	7	1 28 4.28	4 48 24.2	103.58
8	23 55 2.14	3 15 41.6	99.90	8	1 30 7.10	4 58 45.4	103.49
9	23 56 58.22	3 5 41.5	100.13	9	1 32 10.14	5 9 6.1	103.39
10	23 58 54.37	2 55 40.1	100.34	10	1 34 13.41	5 19 26.1	103.27
11	0 0 50.59	2 45 37.4	100.56	11	1 36 16.90	5 29 45.4	103.14
12	0 2 46.89	2 35 33.4	100.77	12	1 38 20.63	5 40 3.8	103.01
13	0 4 43.26	2 25 28.2	100.97	13	1 40 24.60	5 50 21.5	102.87
14	0 6 39.71	2 15 21.8	101.17	14	1 42 28.80	6 0 38.3	102.72
15	0 8 36.25	2 5 14.2	101.36	15	1 44 33.25	6 10 54.1	102.56
16	0 10 32.88	1 55 5.5	101.54	16	1 46 37.95	6 21 9.0	102.39
17	0 12 29.59	1 44 55.7	101.73	17	1 48 42.89	6 31 22.8	102.21
18	0 14 26.40	1 34 44.8	101.90	18	1 50 48.08	6 41 35.5	102.02
19	0 16 23.30	1 24 32.9	102.07	19	1 52 53.53	6 51 47.0	101.83
20	0 18 20.31	1 14 20.0	102.23	20	1 54 59.23	7 1 57.4	101.63
21	0 20 17.41	1 4 6.2	102.39	21	1 57 5.19	7 12 6.5	101.40
22	0 22 14.62	0 53 51.5	102.53	22	1 59 11.42	7 22 14.2	101.17
23	0 24 11.95	S. 0 43 35.9	102.67	23	2 1 17.91	N. 7 32 20.5	100.93
SUNDAY 14.				TUESDAY 16.			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	0 26 9.39	S. 0 33 19.4	102.81	0	2 3 24.67	N. 7 42 25.4	100.69
1	0 28 6.94	0 23 2.2	102.93	1	2 5 31.70	7 52 28.8	100.43
2	0 30 4.62	0 12 44.2	103.06	2	2 7 39.01	8 2 30.6	100.16
3	0 32 2.42	S. 0 2 25.5	103.18	3	2 9 46.59	8 12 30.8	99.89
4	0 34 0.34	N. 0 7 53.9	103.29	4	2 11 54.45	8 22 29.3	99.61
5	0 35 58.39	0 18 14.0	103.39	5	2 14 2.60	8 32 26.1	99.32
6	0 37 56.58	0 8 34.6	103.48	6	2 16 11.03	8 42 21.1	99.01
7	0 39 54.90	0 38 55.8	103.58	7	2 18 19.75	8 52 14.2	98.68
8	0 41 53.37	0 49 17.6	103.67	8	2 20 28.76	9 2 5.3	98.36
9	0 43 51.98	0 59 39.8	103.74	9	2 22 38.06	9 11 54.5	98.03
10	0 45 50.73	1 10 2.5	103.81	10	2 24 47.66	9 21 41.6	97.67
11	0 47 49.63	1 20 25.5	103.87	11	2 26 57.56	9 31 26.5	97.31
12	0 49 48.69	1 30 48.9	103.93	12	2 29 7.75	9 41 9.3	96.94
13	0 51 47.90	1 41 12.7	103.98	13	2 31 18.25	9 50 49.8	96.56
14	0 53 47.27	1 51 36.7	104.02	14	2 33 29.06	10 0 28.0	96.16
15	0 55 46.81	2 2 0.9	104.06	15	2 35 40.17	10 10 3.7	95.75
16	0 57 46.51	2 12 25.4	104.09	16	2 37 51.60	10 19 37.0	95.34
17	0 59 46.38	2 22 50.0	104.11	17	2 40 3.34	10 29 7.8	94.92
18	1 1 46.42	2 33 14.7	104.12	18	2 42 15.39	10 38 36.0	94.48
19	1 3 46.64	2 43 39.4	104.13	19	2 44 27.76	10 48 1.5	94.03
20	1 5 47.04	2 54 4.2	104.13	20	2 46 40.44	10 57 24.3	93.56
21	1 7 47.63	3 4 29.0	104.12	21	2 48 53.45	11 6 44.2	93.08
22	1 9 48.40	3 14 53.6	104.09	22	2 51 6.78	11 16 1.3	92.60
23	1 11 49.36	3 25 18.1	104.07	23	2 53 20.43	11 25 15.4	92.10
24	1 13 50.51	N. 3 35 42.5	104.04	24	2 55 34.41	N. 11 34 26.5	91.59

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 17.				FRIDAY 19.			
0	^h 2 ^m 55 ^s 34.41	N. 11 34 26.5	91.59	0	^h 4 ^m 49 ^s 20.87	N. 17 31 21.3	52.83
1	2 57 48.71	11 43 34.5	91.07	1	4 51 51.05	17 36 31.3	51.11
2	3 0 3.35	11 52 39.3	90.53	2	4 54 21.52	17 41 34.6	49.98
3	3 2 18.31	12 1 40.9	89.98	3	4 56 52.27	17 46 31.0	48.83
4	3 4 33.61	12 10 39.1	89.43	4	4 59 23.30	17 51 20.5	47.67
5	3 6 49.24	12 19 34.0	88.86	5	5 1 54.61	17 56 3.0	46.49
6	3 9 5.21	12 28 25.4	88.27	6	5 4 26.20	18 0 38.4	45.31
7	3 11 21.51	12 37 13.2	87.67	7	5 6 58.05	18 5 6.7	44.12
8	3 13 38.15	12 45 57.4	87.06	8	5 9 30.16	18 9 27.9	42.93
9	3 15 55.13	12 54 37.9	86.44	9	5 12 2.54	18 13 41.9	41.72
10	3 18 12.44	13 3 14.7	85.81	10	5 14 35.17	18 17 48.5	40.49
11	3 20 30.10	13 11 47.7	85.16	11	5 17 8.05	18 21 47.8	39.26
12	3 22 48.09	13 20 16.7	84.50	12	5 19 41.17	18 25 39.6	38.02
13	3 25 6.43	13 28 41.7	83.83	13	5 22 14.54	18 29 24.0	36.77
14	3 27 25.11	13 37 2.7	83.15	14	5 24 48.14	18 33 0.9	35.52
15	3 29 44.13	13 45 19.5	82.45	15	5 27 21.97	18 36 30.2	34.25
16	3 32 3.49	13 53 32.1	81.74	16	5 29 56.02	18 39 51.9	32.97
17	3 34 23.20	14 1 40.4	81.02	17	5 32 30.29	18 43 5.9	31.68
18	3 36 43.25	14 9 44.3	80.28	18	5 35 4.78	18 46 12.1	30.39
19	3 39 3.64	14 17 43.7	79.53	19	5 37 39.47	18 49 10.6	29.10
20	3 41 24.38	14 25 38.6	78.77	20	5 40 14.37	18 52 1.3	27.78
21	3 43 45.46	14 33 28.9	77.99	21	5 42 49.46	18 54 44.0	26.46
22	3 46 6.88	14 41 14.5	77.21	22	5 45 24.74	18 57 18.8	25.14
23	3 48 28.64	N. 14 48 55.4	76.41	23	5 48 0.21	N. 18 59 45.7	23.81
THURSDAY 18.				SATURDAY 20.			
0	3 50 50.75	N. 14 56 31.4	75.59	0	5 50 35.85	N. 19 2 4.5	22.47
1	3 53 13.20	15 4 2.5	74.77	1	5 53 11.67	19 4 15.3	21.13
2	3 55 35.99	15 11 28.6	73.93	2	5 55 47.65	19 6 18.1	19.78
3	3 57 59.13	15 18 49.6	73.07	3	5 58 23.79	19 8 12.7	18.42
4	4 0 22.60	15 26 5.4	72.20	4	6 1 0.08	19 9 59.1	17.06
5	4 2 46.41	15 33 16.0	71.32	5	6 3 36.52	19 11 37.4	15.69
6	4 5 10.56	15 40 21.3	70.43	6	6 6 13.09	19 13 7.4	14.32
7	4 7 35.04	15 47 21.2	69.52	7	6 8 49.80	19 14 29.2	12.94
8	4 9 59.86	15 54 15.6	68.61	8	6 11 26.64	19 15 42.7	11.56
9	4 12 25.01	16 1 4.5	67.68	9	6 14 3.59	19 16 47.9	10.17
10	4 14 50.50	16 7 47.8	66.73	10	6 16 40.66	19 17 44.8	8.78
11	4 17 16.31	16 14 25.3	65.78	11	6 19 17.83	19 18 33.3	7.38
12	4 19 42.45	16 20 57.1	64.82	12	6 21 55.09	19 19 13.4	5.99
13	4 22 8.92	16 27 23.1	63.83	13	6 24 32.45	19 19 45.2	4.59
14	4 24 35.71	16 33 43.1	62.83	14	6 27 9.90	19 20 8.5	3.18
15	4 27 2.82	16 39 57.1	61.83	15	6 29 47.42	19 20 23.4	1.78
16	4 29 30.25	16 46 5.1	60.81	16	6 32 25.01	19 20 29.9	0.38
17	4 31 58.00	16 52 6.9	59.78	17	6 35 2.67	19 20 28.0	1.03
18	4 34 26.06	16 58 2.4	58.73	18	6 37 40.38	19 20 17.6	2.44
19	4 36 54.43	17 3 51.7	57.68	19	6 40 18.14	19 19 58.7	3.85
20	4 39 23.11	17 9 34.6	56.62	20	6 42 55.94	19 19 31.4	5.26
21	4 41 52.10	17 15 11.1	55.54	21	6 45 33.77	19 18 55.6	6.67
22	4 44 21.39	17 20 41.1	54.45	22	6 48 11.63	19 18 11.3	8.09
23	4 46 50.98	17 26 4.5	53.35	23	6 50 49.51	19 17 18.5	9.50
24	4 49 20.87	N. 17 31 21.3	52.23	24	6 53 27.41	N. 19 16 17.3	10.91

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SUNDAY 21.				TUESDAY 23.			
0	6 53 27.41	N. 19 16 17.3	10.91	0	8 57 52.45	N. 15 49 35.0	72.26
1	6 56 5.31	19 15 7.6	12.32	1	9 0 23.35	15 42 18.3	73.30
2	6 58 43.21	19 13 49.4	13.73	2	9 2 53.90	15 34 55.4	74.33
3	7 1 21.10	19 12 22.8	15.13	3	9 5 24.37	15 27 26.4	75.34
4	7 3 58.97	19 10 47.8	16.54	4	9 7 54.49	15 19 51.3	76.35
5	7 6 36.82	19 9 4.3	17.95	5	9 10 24.34	15 12 10.2	77.34
6	7 9 14.64	19 7 12.4	19.35	6	9 12 53.92	15 4 23.2	78.32
7	7 11 52.42	19 5 12.1	20.75	7	9 15 23.24	14 56 30.4	79.28
8	7 14 30.16	19 3 3.4	22.14	8	9 17 52.29	14 48 31.8	80.24
9	7 17 7.85	19 0 46.4	23.53	9	9 20 21.07	14 40 27.5	81.18
10	7 19 45.48	18 58 21.0	24.92	10	9 22 49.57	14 32 17.7	82.10
11	7 22 23.04	18 55 47.3	26.31	11	9 25 17.80	14 24 2.3	83.02
12	7 25 0.54	18 53 5.3	27.69	12	9 27 45.75	14 15 41.5	83.92
13	7 27 37.96	18 50 15.0	29.07	13	9 30 13.42	14 7 15.3	84.80
14	7 30 15.29	18 47 16.5	30.44	14	9 32 40.82	13 58 43.9	85.67
15	7 32 52.53	18 44 9.7	31.81	15	9 35 7.93	13 50 7.3	86.53
16	7 35 29.67	18 40 54.8	33.17	16	9 37 34.76	13 41 25.6	87.37
17	7 38 6.71	18 37 31.7	34.53	17	9 40 1.31	13 32 38.9	88.20
18	7 40 43.64	18 34 0.5	35.87	18	9 42 27.58	13 23 47.2	89.02
19	7 43 20.45	18 30 21.3	37.21	19	9 44 53.57	13 14 50.6	89.83
20	7 45 57.13	18 26 34.0	38.55	20	9 47 19.27	13 5 49.3	90.61
21	7 48 33.69	18 22 38.7	39.87	21	9 49 44.69	12 56 43.3	91.38
22	7 51 10.12	18 18 35.5	41.19	22	9 52 9.82	12 47 32.7	92.15
23	7 53 46.40	N. 18 14 24.4	42.51	23	9 54 34.67	N. 12 38 17.5	92.90
MONDAY 22.				WEDNESDAY 24.			
0	7 56 22.53	N. 18 10 5.4	43.82	0	9 56 59.23	N. 12 28 57.9	93.63
1	7 58 58.51	18 5 38.6	45.11.	1	9 59 23.51	12 19 33.9	94.35
2	8 1 34.33	18 1 4.1	46.40	2	10 1 47.50	12 10 5.7	95.05
3	8 4 9.99	17 56 21.8	47.68	3	10 4 11.21	12 0 33.3	95.74
4	8 6 45.48	17 51 31.9	48.95	4	10 6 34.64	11 50 56.8	96.42
5	8 9 20.80	17 46 34.4	50.22	5	10 8 57.78	11 41 16.2	97.09
6	8 11 55.93	17 41 29.3	51.48	6	10 11 20.64	11 31 31.7	97.74
7	8 14 30.88	17 36 16.7	52.72	7	10 13 43.22	11 21 43.3	98.38
8	8 17 5.64	17 30 56.7	53.95	8	10 16 5.51	11 11 51.2	98.99
9	8 19 40.21	17 25 29.3	55.18	9	10 18 27.53	11 1 55.4	99.60
10	8 22 14.58	17 19 54.5	56.40	10	10 20 49.27	10 51 56.0	100.20
11	8 24 48.74	17 14 12.5	57.60	11	10 23 10.73	10 41 53.0	100.79
12	8 27 22.69	17 8 23.3	58.80	12	10 25 31.91	10 31 46.5	101.36
13	8 29 56.43	17 2 26.9	59.98	13	10 27 52.82	10 21 36.7	101.90
14	8 32 29.96	16 56 23.5	61.16	14	10 30 13.45	10 11 23.7	102.44
15	8 35 3.26	16 50 13.0	62.33	15	10 32 33.81	10 1 7.4	102.97
16	8 37 36.34	16 43 55.6	63.47	16	10 34 53.89	9 50 48.0	103.48
17	8 40 9.19	16 37 31.4	64.61	17	10 37 13.71	9 40 25.6	103.98
18	8 42 41.81	16 31 0.3	65.74	18	10 39 33.26	9 30 0.2	104.47
19	8 45 14.19	16 24 22.5	66.86	19	10 41 52.54	9 19 31.9	104.94
20	8 47 46.33	16 17 38.0	67.96	20	10 44 11.56	9 9 0.9	105.40
21	8 50 18.23	16 10 47.0	69.05	21	10 46 30.31	8 58 27.1	105.86
22	8 52 49.89	16 3 49.4	70.13	22	10 48 48.80	8 47 50.6	106.29
23	8 55 21.29	15 56 45.4	71.20	23	10 51 7.03	8 37 11.6	106.71
24	8 57 52.45	N. 15 49 35.0	72.26	24	10 53 25.01	N. 8 26 30.1	107.12

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 25.				SATURDAY 27.			
0	10 53 25 ⁰¹	N. 8 26 30 ¹	107 ¹²	0	12 39 34 ⁰²	S. 0 31 22 ³	112 ⁶⁸
1	10 55 42 ⁷³	8 15 46 ²	107 ⁵¹	1	12 41 42 ⁵⁹	0 42 37 ⁹	112 ⁵⁴
2	10 58 0 ¹⁹	8 5 0 ⁰	107 ⁸⁸	2	12 43 51 ⁰⁵	0 53 52 ⁷	112 ³⁹
3	11 0 17 ⁴¹	7 54 11 ⁶	108 ²⁵	3	12 45 59 ³⁹	1 5 6 ⁶	112 ²²
4	11 2 34 ³⁷	7 43 21 ⁰	108 ⁶¹	4	12 48 7 ⁶²	1 16 19 ⁴	112 ⁰⁴
5	11 4 51 ⁰⁹	7 32 28 ³	108 ⁹⁶	5	12 50 15 ⁷⁴	1 27 31 ¹	111 ⁸⁶
6	11 7 7 ⁵⁶	7 21 33 ⁵	109 ²⁹	6	12 52 23 ⁷⁶	1 38 41 ⁸	111 ⁶⁸
7	11 9 23 ⁷⁹	7 10 36 ⁸	109 ⁶⁰	7	12 54 31 ⁶⁸	1 49 51 ³	111 ⁴⁸
8	11 11 39 ⁷⁸	6 59 38 ³	109 ⁹⁰	8	12 56 39 ⁵⁰	2 0 59 ⁵	111 ²⁷
9	11 13 55 ⁵³	6 48 38 ⁰	110 ²⁰	9	12 58 47 ²²	2 12 6 ⁵	111 ⁰⁶
10	11 16 11 ⁰⁵	6 37 35 ⁹	110 ⁴⁸	10	13 0 54 ⁸⁴	2 23 12 ²	110 ⁸³
11	11 18 26 ³³	6 26 32 ²	110 ⁷⁴	11	13 3 2 ³⁸	2 34 16 ⁴	110 ⁵⁸
12	11 20 41 ³⁸	6 15 27 ⁰	110 ⁹⁹	12	13 5 9 ⁸³	2 45 19 ²	110 ³⁴
13	11 22 56 ²¹	6 4 20 ³	111 ²⁴	13	13 7 17 ²⁰	2 56 20 ⁵	110 ⁰⁹
14	11 25 10 ⁸¹	5 53 12 ¹	111 ⁴⁷	14	13 9 24 ⁴⁸	3 7 20 ³	109 ⁸³
15	11 27 25 ¹⁹	5 42 2 ⁶	111 ⁶⁹	15	13 11 31 ⁶⁹	3 18 18 ⁵	109 ⁵⁶
16	11 29 39 ³⁵	5 30 51 ⁸	111 ⁹⁰	16	13 13 38 ⁸²	3 29 15 ⁰	109 ²⁸
17	11 31 53 ²⁹	5 19 39 ⁸	112 ¹⁰	17	13 15 45 ⁸⁸	3 40 9 ⁸	108 ⁹⁹
18	11 34 7 ⁰²	5 8 26 ⁶	112 ²⁸	18	13 17 52 ⁸⁷	3 51 2 ⁹	108 ⁷⁰
19	11 36 20 ⁵⁴	4 57 12 ⁴	112 ⁴⁵	19	13 19 59 ⁷⁹	4 1 54 ²	108 ⁴⁰
20	11 38 33 ⁸⁵	4 45 57 ²	112 ⁶¹	20	13 22 6 ⁶⁵	4 12 43 ⁷	108 ⁰⁹
21	11 40 46 ⁹⁵	4 34 41 ¹	112 ⁷⁶	21	13 24 13 ⁴⁴	4 23 31 ³	107 ⁷⁶
22	11 42 59 ⁸⁵	4 23 24 ¹	112 ⁸⁹	22	13 26 20 ¹⁸	4 34 16 ⁹	107 ⁴³
23	11 45 12 ⁵⁵	N. 4 12 6 ⁴	113 ⁰²	23	13 28 26 ⁸⁶	S. 4 45 0 ⁵	107 ¹⁰
FRIDAY 26.				SUNDAY 28.			
0	11 47 25 ⁰⁶	N. 4 0 47 ⁹	113 ¹⁴	0	13 30 33 ⁴⁹	S. 4 55 42 ¹	106 ⁷⁶
1	11 49 37 ³⁷	3 49 28 ⁷	113 ²⁴	1	13 32 40 ⁰⁷	5 6 21 ⁶	106 ⁴¹
2	11 51 49 ⁴⁹	3 38 9 ⁰	113 ³³	2	13 34 46 ⁶⁰	5 16 59 ⁰	106 ⁰⁵
3	11 54 1 ⁴²	3 26 48 ⁸	113 ⁴¹	3	13 36 53 ⁰⁸	5 27 34 ²	105 ⁶⁸
4	11 56 13 ¹⁷	3 15 28 ¹	113 ⁴⁸	4	13 38 59 ⁵²	5 38 7 ²	105 ³¹
5	11 58 24 ⁷⁴	3 4 7 ⁰	113 ⁵⁴	5	13 41 5 ⁹³	5 48 37 ⁹	104 ⁹²
6	12 0 36 ¹²	2 52 45 ⁶	113 ⁵⁸	6	13 43 12 ²⁹	5 59 6 ²	104 ⁵³
7	12 2 47 ³³	2 41 24 ⁰	113 ⁶²	7	13 45 18 ⁶²	6 9 32 ²	104 ¹³
8	12 4 58 ³⁷	2 30 2 ²	113 ⁶⁵	8	13 47 24 ⁹²	6 19 55 ⁸	103 ⁷²
9	12 7 9 ²⁴	2 18 40 ²	113 ⁶⁶	9	13 49 31 ¹⁸	6 30 16 ⁹	103 ³¹
10	12 9 19 ⁹⁴	2 7 18 ²	113 ⁶⁷	10	13 51 37 ⁴²	6 40 35 ⁵	102 ⁸⁹
11	12 11 30 ⁴⁸	1 55 56 ²	113 ⁶⁶	11	13 53 43 ⁶³	6 50 51 ⁶	102 ⁴⁶
12	12 13 40 ⁸⁶	1 44 34 ²	113 ⁶⁵	12	13 55 49 ⁸²	7 1 5 ⁰	102 ⁰²
13	12 15 51 ⁰⁸	1 33 12 ⁴	113 ⁶³	13	13 57 55 ⁹⁹	7 11 15 ⁸	101 ⁵⁷
14	12 18 1 ¹⁵	1 21 50 ⁷	113 ⁵⁹	14	14 0 2 ¹⁴	7 21 23 ⁹	101 ¹²
15	12 20 11 ⁰⁶	1 10 29 ³	113 ⁵³	15	14 2 8 ²⁷	7 31 29 ²	100 ⁶⁶
16	12 22 20 ⁸³	0 59 8 ³	113 ⁴⁷	16	14 4 14 ⁴⁰	7 41 31 ⁸	100 ²⁰
17	12 24 30 ⁴⁶	0 47 47 ⁶	113 ⁴¹	17	14 6 20 ⁵¹	7 51 31 ⁶	99 ⁷³
18	12 26 39 ⁹⁴	0 36 27 ³	113 ³⁴	18	14 8 26 ⁶¹	8 1 28 ⁵	99 ²⁴
19	12 28 49 ²⁸	0 25 7 ⁵	113 ²⁶	19	14 10 32 ⁷⁰	8 11 22 ⁵	98 ⁷⁵
20	12 30 58 ⁴⁹	0 13 48 ²	113 ¹⁷	20	14 12 38 ⁷⁹	8 21 13 ⁵	98 ²⁵
21	12 33 7 ⁵⁶	N. 0 2 29 ⁵	113 ⁰⁶	21	14 14 44 ⁸⁷	8 31 1 ⁵	97 ⁷⁵
22	12 35 16 ⁵¹	S. 0 8 48 ⁵	112 ⁹⁴	22	14 16 50 ⁹⁶	8 40 46 ⁵	97 ²⁵
23	12 37 25 ³³	0 20 5 ⁸	112 ⁸²	23	14 18 57 ⁰⁴	8 50 28 ⁵	96 ⁷³
24	12 39 34 ⁰²	S. 0 31 22 ³	112 ⁶⁸	24	14 21 3 ¹³	S. 9 0 7 ³	96 ²⁰

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^{ms} .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^{ms} .
MONDAY 29.				TUESDAY 30.			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	14 21 3 ¹³	S. 9 0 7 ³	96 ²⁰	0	15 11 34 ⁵⁹	S. 12 34 20 ²	81 ⁶⁹
1	14 23 9 ²²	9 9 42 ⁹	95 ⁶⁸	1	15 13 41 ²⁸	12 42 28 ³	81 ⁰¹
2	14 25 15 ³²	9 19 15 ⁴	95 ¹⁵	2	15 15 48 ⁰⁰	12 50 32 ³	80 ³²
3	14 27 21 ⁴³	9 28 44 ⁷	94 ⁶⁰	3	15 17 54 ⁷⁷	12 58 32 ¹	79 ⁶²
4	14 29 27 ⁵⁵	9 38 10 ⁶	94 ⁰⁴	4	15 20 1 ⁵⁸	13 6 27 ⁷	78 ⁹²
5	14 31 33 ⁶⁸	9 47 33 ²	93 ⁴⁹	5	15 22 8 ⁴³	13 14 19 ²	78 ²²
6	14 33 39 ⁸³	9 56 52 ⁵	92 ⁹³	6	15 24 15 ³³	13 22 6 ⁴	77 ⁵¹
7	14 35 45 ⁹⁹	10 6 8 ⁴	92 ³⁶	7	15 26 22 ²⁶	13 29 49 ³	76 ⁷⁹
8	14 37 52 ¹⁶	10 15 20 ⁸	91 ⁷⁸	8	15 28 29 ²⁴	13 37 27 ⁹	76 ⁰⁷
9	14 39 58 ³⁶	10 24 29 ⁷	91 ¹⁹	9	15 30 36 ²⁷	13 45 2 ²	75 ³⁵
10	14 42 4 ⁵⁸	10 33 35 ¹	90 ⁶¹	10	15 32 43 ³⁴	13 52 32 ¹	74 ⁶²
11	14 44 10 ⁸²	10 42 37 ⁰	90 ⁰¹	11	15 34 50 ⁴⁶	13 59 57 ⁶	73 ⁸⁸
12	14 46 17 ⁰⁹	10 51 35 ³	89 ⁴¹	12	15 36 57 ⁶³	14 7 18 ⁷	73 ¹⁴
13	14 48 23 ³⁸	11 0 29 ⁹	88 ⁸⁰	13	15 39 4 ⁸⁴	14 14 35 ³	72 ³⁹
14	14 50 29 ⁷⁰	11 9 20 ⁹	88 ¹⁸	14	15 41 12 ¹⁰	14 21 47 ⁴	71 ⁶⁴
15	14 52 36 ⁰⁴	11 18 8 ¹	87 ⁵⁶	15	15 43 19 ⁴⁰	14 28 55 ⁰	70 ⁸⁹
16	14 54 42 ⁴¹	11 26 51 ⁶	86 ⁹³	16	15 45 26 ⁷⁵	14 35 58 ¹	70 ¹²
17	14 56 48 ⁸²	11 35 31 ³	86 ³⁰	17	15 47 34 ¹⁵	14 42 56 ⁵	69 ³⁵
18	14 58 55 ²⁵	11 44 7 ²	85 ⁶⁶	18	15 49 41 ⁶⁰	14 49 50 ³	68 ⁵⁸
19	15 1 1 ⁷²	11 52 39 ²	85 ⁰¹	19	15 51 49 ⁰⁹	14 56 39 ⁵	67 ⁸¹
20	15 3 8 ²²	12 1 7 ³	84 ³⁶	20	15 53 56 ⁶⁴	15 3 24 ⁰	67 ⁰²
21	15 5 14 ⁷⁶	12 9 31 ⁵	83 ⁷¹	21	15 56 4 ²³	15 10 3 ⁸	66 ²³
22	15 7 21 ³³	12 17 51 ⁸	83 ⁰⁴	22	15 58 11 ⁸⁶	15 16 38 ⁸	65 ⁴⁴
23	15 9 27 ⁹⁴	12 26 8 ⁰	82 ³⁷	23	16 0 19 ⁵⁵	15 23 9 ¹	64 ⁶⁴
24	15 11 34 ⁵⁹	S. 12 34 20 ²	81 ⁶⁹	24	16 2 27 ²⁸	S. 15 29 34 ⁵	63 ⁸⁴

PHASES OF THE MOON.

June 4	○	Full Moon	- - - - -	<i>h m</i> 18 55 ⁰
12	☾	Last Quarter	- - - - -	22 13 ⁶
20	●	New Moon	- - - - -	2 45 ¹
26	☾	First Quarter	- - - - -	17 50 ⁶

June 9	☾	Apogee	- - - - -	<i>h</i> - 16
21	☾	Perigee	- - - - -	- 18

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^b .	P.L. of diff.	VI ^b .	P.L. of diff.	IX ^b .	P.L. of diff.
1	Pollux W.	93 51 38	2631	95 29 51	2640	97 7 51	2649	98 45 39	2659
	Venus W.	91 59 41	2811	93 33 55	2818	95 7 59	2827	96 41 52	2835
	Regulus W.	57 50 36	2568	59 30 15	2576	61 9 43	2585	62 48 58	2593
	Saturn E.	35 56 52	2561	34 17 4	2571	32 37 29	2581	30 58 8	2592
	Antares E.	43 0 6	2704	41 23 31	2722	39 47 20	2741	38 11 34	2761
	α Aquilæ E.	91 33 1	3058	90 4 0	3067	88 35 10	3077	87 6 32	3087
2	Venus W.	104 28 39	2876	106 1 29	2884	107 34 8	2893	109 6 36	2901
	Regulus W.	71 2 20	2636	72 40 26	2646	74 18 19	2654	75 56 1	2662
	Spica W.	18 16 52	2874	19 49 44	2888	21 23 10	2829	22 57 0	2816
	Antares E.	30 20 15	2895	28 47 50	2932	27 16 12	2975	25 45 27	3024
	α Aquilæ E.	79 46 42	3148	78 19 31	3163	76 52 38	3179	75 26 4	3195
	Fomalhaut E.	113 7 46	2983	111 37 12	2984	110 6 39	2985	108 36 8	2988
3	Regulus W.	84 1 35	2707	85 38 6	2715	87 14 26	2724	88 50 34	2733
	Spica W.	30 49 0	2796	32 23 33	2797	33 58 5	2799	35 32 34	2802
	α Aquilæ E.	68 18 31	3294	66 54 12	3317	65 30 20	3342	64 6 57	3368
	Fomalhaut E.	101 4 34	3009	99 34 33	3015	98 4 39	3021	96 34 52	3029
4	Regulus W.	96 48 17	2777	98 23 15	2787	99 58 0	2795	101 32 35	2804
	Spica W.	43 23 39	2827	44 57 32	2834	46 31 16	2840	48 4 52	2847
	α Aquilæ E.	57 18 2	3524	55 58 4	3562	54 38 48	3601	53 20 15	3644
	Fomalhaut E.	89 8 21	3069	87 39 34	3078	86 10 58	3089	84 42 35	3100
	α Pegasi E.	104 1 31	3102	102 33 24	3107	101 5 23	3112	99 37 28	3119
5	Spica W.	55 50 35	2883	57 23 16	2891	58 55 47	2898	60 28 8	2905
	Saturn W.	16 13 51	2890	17 46 23	2888	19 18 57	2889	20 51 30	2891
	α Aquilæ E.	47 0 5	3913	45 46 58	3979	44 34 58	4052	43 24 10	4132
	Fomalhaut E.	77 23 58	3157	75 56 57	3170	74 30 12	3183	73 3 43	3197
	α Pegasi E.	92 19 57	3155	90 52 54	3163	89 26 1	3172	87 59 19	3182
	Jupiter E.	111 38 33	2907	110 6 23	2916	108 34 25	2925	107 2 38	2933
6	Spica W.	68 7 28	2943	69 38 52	2952	71 10 5	2959	72 41 9	2966
	Saturn W.	28 33 11	2915	30 5 11	2920	31 37 4	2927	33 8 49	2933
	Antares W.	23 39 21	3296	25 3 37	3264	26 28 31	3237	27 53 56	3216
	Fomalhaut E.	65 55 36	3274	64 30 54	3292	63 6 33	3310	61 42 33	3328
	α Pegasi E.	80 48 44	3233	79 23 14	3245	77 57 58	3257	76 32 56	3269
	Jupiter E.	99 26 22	2975	97 55 38	2983	96 25 4	2992	94 54 41	2999
7	Spica W.	80 14 12	3002	81 44 22	3009	83 14 23	3015	84 44 17	3022
	Saturn W.	40 45 34	2964	42 16 31	2971	43 47 20	2977	45 18 1	2983
	Antares W.	35 5 55	3158	36 32 54	3153	38 0 0	3148	39 27 11	3145
	Fomalhaut E.	54 48 15	3437	53 26 40	3462	52 5 33	3489	50 44 56	3517
	α Pegasi E.	69 31 25	3335	68 7 54	3351	66 44 41	3365	65 21 44	3381
	Jupiter E.	87 25 7	3036	85 55 39	3044	84 26 20	3051	82 57 10	3056
8	Saturn W.	52 49 42	3010	54 19 42	3015	55 49 36	3020	57 19 24	3023
	Antares W.	46 43 46	3139	48 11 8	3139	49 38 30	3140	51 5 51	3139
	Fomalhaut E.	44 10 23	3692	42 53 27	3735	41 37 17	3782	40 21 56	3834
	α Pegasi E.	58 31 46	3470	57 10 48	3490	55 50 13	3512	54 30 2	3534
	Jupiter E.	75 33 12	3087	74 4 46	3092	72 36 26	3096	71 8 12	3101
	Mars E.	109 21 33	3315	107 57 39	3320	106 33 51	3325	105 10 8	3330
9	Saturn W.	64 47 14	3042	66 16 35	3044	67 45 54	3046	69 15 10	3048

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
1	Pollux W.	100 23 14	1667	102 0 38	1677	103 37 48	1687	105 14 46	1696
	Venus W.	98 15 34	1843	99 49 6	1852	101 22 27	1859	102 55 39	1868
	Regulus W.	64 28 2	1602	66 6 54	1610	67 45 35	1620	69 24 3	1628
	Saturn E.	29 19 2	1602	27 40 10	1614	26 1 34	1626	24 23 15	1639
	Antares E.	36 36 15	1783	35 1 25	1807	33 27 6	1833	31 53 21	1863
	α Aquilæ E.	85 38 6	1097	84 9 53	1109	82 41 54	1121	81 14 10	1134
2	Venus W.	110 38 54	1910	112 11 0	1918	113 42 56	1926	115 14 42	1935
	Regulus W.	77 33 32	1672	79 10 50	1680	80 47 57	1689	82 24 52	1698
	Spica W.	24 31 7	1806	26 5 27	1801	27 39 54	1797	29 14 26	1795
	Antares E.	24 15 44	1308	22 47 10	1348	21 19 59	1320	19 54 26	1331
	α Aquilæ E.	73 59 49	1313	72 33 55	1323	71 8 23	1352	69 43 15	1372
	Fomalhaut E.	107 5 40	1991	105 35 16	1995	104 4 57	1999	102 34 42	2004
3	Regulus W.	90 26 30	1741	92 2 15	1751	93 37 47	1760	95 13 8	1769
	Spica W.	37 6 59	1806	38 41 19	1811	40 15 32	1815	41 49 40	1822
	α Aquilæ E.	62 44 4	1395	61 21 42	1344	59 59 53	1355	58 38 39	1349
	Fomalhaut E.	95 5 15	1035	93 35 46	1043	92 6 27	1052	90 37 19	1060
4	Regulus W.	103 6 57	1813	104 41 8	1821	106 15 8	1831	107 48 56	1841
	Spica W.	49 38 19	1854	51 11 37	1861	52 44 46	1869	54 17 45	1876
	α Aquilæ E.	52 2 28	1369	50 45 30	1374	49 29 25	13793	48 14 16	13850
	Fomalhaut E.	83 14 25	1110	81 46 27	1121	80 18 43	1133	78 51 13	1145
	α Pegasi E.	98 9 41	1125	96 42 2	1132	95 14 31	1139	93 47 9	1148
5	Spica W.	62 0 20	1913	63 32 22	1921	65 4 14	1929	66 35 56	1937
	Saturn W.	22 24 1	1894	23 56 27	1898	25 28 48	1903	27 1 3	1909
	α Aquilæ E.	42 14 39	1219	41 6 31	1215	39 59 52	1219	38 54 48	1232
	Fomalhaut E.	71 37 30	1212	70 11 35	1226	68 45 57	1241	67 20 37	1258
	α Pegasi E.	86 32 49	1191	85 6 29	1202	83 40 22	1212	82 14 27	1222
	Jupiter E.	105 31 1	1942	103 59 36	1950	102 28 21	1958	100 57 16	1967
6	Spica W.	74 12 4	1974	75 42 49	1981	77 13 26	1989	78 43 53	1995
	Saturn W.	34 40 26	1939	36 11 55	1946	37 43 16	1952	39 14 29	1959
	Antares W.	29 19 46	1199	30 45 57	1185	32 12 24	1174	33 39 4	1165
	Fomalhaut E.	60 18 54	1348	58 55 38	1368	57 32 45	1390	56 10 17	1413
	α Pegasi E.	75 8 8	1281	73 43 34	1294	72 19 16	1307	70 55 13	1320
	Jupiter E.	93 24 27	1007	91 54 23	1014	90 24 28	1022	88 54 43	1030
7	Spica W.	86 14 2	1028	87 43 40	1034	89 13 10	1040	90 42 33	1046
	Saturn W.	46 48 35	1989	48 19 2	1994	49 49 22	2000	51 19 35	2005
	Antares W.	40 54 26	1143	42 21 44	1142	43 49 3	1140	45 16 24	1139
	Fomalhaut E.	49 24 51	1347	48 5 18	1380	46 46 22	1364	45 28 2	1361
	α Pegasi E.	63 59 6	1397	62 36 46	1415	61 14 46	1432	59 53 5	1451
	Jupiter E.	81 28 7	1063	79 59 12	1069	78 30 25	1075	77 1 45	1081
8	Saturn W.	58 49 8	1028	60 18 46	1032	61 48 19	1035	63 17 48	1038
	Antares W.	52 33 13	1141	54 0 33	1141	55 27 53	1141	56 55 13	1142
	Fomalhaut E.	39 7 29	1392	37 54 1	1394	36 41 35	1403	35 30 18	1400
	α Pegasi E.	53 10 16	1358	51 50 56	1384	50 32 4	1361	49 13 42	1360
	Jupiter E.	69 40 3	1105	68 12 0	1109	66 44 2	1113	65 16 8	1116
	Mars E.	103 46 31	1335	102 23 0	1339	100 59 33	1342	99 36 10	1346
9	Saturn W.	70 44 23	1050	72 13 34	1051	73 42 44	1051	75 11 53	1051

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
9	Antares W.	58 22 31	3142	59 49 50	3143	61 17 8	3143	62 44 26	3143
	α Pegasi E.	47 55 51	3671	46 38 33	3705	45 21 51	3741	44 5 47	3780
	Jupiter E.	63 48 18	3120	62 20 32	3123	60 52 50	3124	59 25 10	3127
	Mars E.	98 12 52	3349	96 49 37	3352	95 26 25	3354	94 3 16	3357
	SUN E.	132 50 1	3454	131 28 45	3455	130 7 31	3456	128 46 18	3457
10	Saturn W.	76 41 2	3052	78 10 10	3052	79 39 19	3051	81 8 29	3050
	Antares W.	70 1 1	3139	71 28 23	3138	72 55 47	3136	74 23 13	3134
	Jupiter E.	52 7 20	3132	50 39 49	3132	49 12 18	3130	47 44 45	3130
	α Arietis E.	78 2 20	3222	76 36 37	3224	75 10 56	3225	73 45 16	3226
	Mars E.	87 7 59	3361	85 44 58	3360	84 21 56	3360	82 58 54	3359
	SUN E.	122 0 26	3458	120 39 15	3458	119 18 4	3456	117 56 50	3455
11	Saturn W.	88 34 48	3038	90 4 14	3034	91 33 44	3030	93 3 19	3025
	Antares W.	81 41 8	3119	83 8 55	3115	84 36 47	3110	86 4 44	3105
	Jupiter E.	40 26 37	3119	38 58 50	3116	37 31 0	3112	36 3 5	3108
	α Arietis E.	66 37 17	3231	65 11 44	3231	63 46 12	3231	62 20 39	3232
	Mars E.	76 3 13	3347	74 39 56	3343	73 16 34	3339	71 53 7	3334
	SUN E.	111 10 5	3439	109 48 33	3435	108 26 56	3430	107 5 13	3424
12	Saturn W.	100 32 53	2997	102 3 10	2989	103 33 37	2981	105 4 13	2973
	Antares W.	93 26 9	3076	94 54 48	3069	96 23 36	3061	97 52 34	3054
	α Aquilæ W.	50 1 10	3917	51 14 12	3871	52 28 1	3830	53 42 32	3791
	α Arietis E.	55 13 8	3235	53 47 40	3236	52 22 14	3238	50 56 50	3240
	Mars E.	64 54 20	3304	63 30 13	3296	62 5 57	3288	60 41 32	3280
	SUN E.	100 14 58	3391	98 52 31	3382	97 29 54	3374	96 7 8	3365
13	α Aquilæ W.	60 4 54	3617	61 23 10	3587	62 41 58	3558	64 1 18	3529
	α Arietis E.	43 50 44	3263	42 25 49	3271	41 1 4	3281	39 36 31	3294
	Mars E.	53 36 50	3231	52 11 18	3221	50 45 34	3210	49 19 37	3199
	SUN E.	89 10 29	3313	87 46 32	3301	86 22 21	3288	84 57 56	3276
14	α Aquilæ W.	70 45 30	3401	72 7 45	3377	73 30 28	3354	74 53 37	3331
	Fomalhaut W.	37 27 31	3209	38 44 9	3637	40 2 3	3571	41 21 9	3511
	Mars E.	42 6 19	3137	40 38 54	3124	39 11 13	3111	37 43 17	3097
	SUN E.	77 51 56	3205	76 25 53	3191	74 59 33	3175	73 32 54	3159
15	α Aquilæ W.	81 55 44	3225	83 21 23	3206	84 47 25	3187	86 13 50	3168
	Fomalhaut W.	48 12 5	3262	49 37 1	3220	51 2 46	3181	52 29 18	3143
	α Pegasi W.	35 9 10	3790	36 24 22	3694	37 41 15	3608	38 59 40	3530
	Mars E.	30 19 34	3033	28 50 2	3021	27 20 16	3011	25 50 16	3001
	SUN E.	66 14 46	3076	64 46 7	3058	63 17 6	3041	61 47 44	3023
16	α Aquilæ W.	93 31 18	3083	94 59 48	3068	96 28 37	3054	97 57 43	3040
	Fomalhaut W.	59 52 48	2976	61 23 31	2946	62 54 51	2917	64 26 48	2890
	α Pegasi W.	45 51 39	3216	47 17 30	3166	48 44 20	3118	50 12 8	3073
	Jupiter W.	20 54 8	2655	22 31 48	2634	24 9 57	2613	25 48 34	2593
	SUN E.	54 15 18	2932	52 43 40	2914	51 11 39	2895	49 39 14	2878
17	Fomalhaut W.	72 15 8	2763	73 50 25	2740	75 26 12	2717	77 2 29	2695
	α Pegasi W.	57 43 58	2883	59 16 39	2850	60 50 2	2818	62 24 6	2788
	Jupiter W.	34 8 23	2497	35 49 40	2479	37 31 23	2460	39 13 32	2443
	SUN E.	41 51 25	2789	40 16 42	2772	38 41 37	2756	37 6 11	2740

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LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
9	Antares W.	64 11 44	3143	65 39 2	3142	67 6 21	3141	68 33 41	3141
	α Pegasi E.	42 50 24	3223	41 35 46	3870	40 21 56	3921	39 8 57	3978
	Jupiter E.	57 57 33	3128	56 29 58	3129	55 2 24	3131	53 34 52	3131
	Mars E.	92 40 10	3358	91 17 5	3359	89 54 2	3360	88 31 0	3361
	SUN E.	127 25 6	3459	126 3 56	3459	124 42 46	3459	123 21 36	3459
10	Saturn W.	82 37 40	3048	84 6 53	3047	85 36 8	3044	87 5 26	3041
	Antares W.	75 50 42	3132	77 18 13	3129	78 45 47	3125	80 13 26	3123
	Jupiter E.	46 17 12	3128	44 49 37	3127	43 22 0	3124	41 54 20	3122
	α Arietis E.	72 19 38	3228	70 54 2	3228	69 28 26	3229	68 2 51	3230
	Mars E.	81 35 50	3358	80 12 45	3355	78 49 37	3353	77 26 27	3350
	SUN E.	116 35 35	3453	115 14 18	3449	113 52 57	3446	112 31 33	3443
11	Saturn W.	94 33 1	3021	96 2 48	3015	97 32 42	3009	99 2 44	3003
	Antares W.	87 32 48	3101	89 0 57	3094	90 29 14	3089	91 57 37	3082
	Jupiter E.	34 35 5	3103	33 6 59	3098	31 38 47	3093	30 10 29	3087
	α Arietis E.	60 55 8	3232	59 29 37	3232	58 4 6	3233	56 38 36	3235
	Mars E.	70 29 35	3328	69 5 56	3323	67 42 11	3317	66 18 19	3311
	SUN E.	105 43 24	3418	104 21 28	3413	102 59 26	3406	101 37 16	3399
12	Saturn W.	106 34 59	2965	108 5 56	2956	109 37 4	2946	111 8 24	2937
	Antares W.	99 21 40	3045	100 50 57	3036	102 20 25	3028	103 50 3	3020
	α Aquilæ W.	54 57 44	3752	56 13 36	3716	57 30 6	3681	58 47 13	3649
	α Arietis E.	49 31 28	3243	48 6 10	3246	46 40 55	3251	45 15 46	3257
	Mars E.	59 16 57	3271	57 52 12	3262	56 27 16	3253	55 2 9	3242
	SUN E.	94 44 12	3355	93 21 4	3345	91 57 45	3334	90 34 13	3324
13	α Aquilæ W.	65 21 10	3503	66 41 31	3476	68 2 22	3450	69 23 42	3425
	α Arietis E.	38 12 13	3309	36 48 12	3327	35 24 32	3350	34 1 18	3376
	Mars E.	47 53 27	3187	46 27 2	3174	45 0 22	3162	43 33 28	3150
	SUN E.	83 33 16	3262	82 8 20	3249	80 43 9	3235	79 17 41	3220
14	α Aquilæ W.	76 17 12	3309	77 41 13	3288	79 5 39	3267	80 30 29	3246
	Fomalhaut W.	42 41 21	3455	44 2 36	3402	45 24 50	3352	46 48 1	3306
	Mars E.	36 15 4	3084	34 46 35	3072	33 17 51	3058	31 48 50	3046
	SUN E.	72 5 56	3143	70 38 38	3127	69 11 1	3110	67 43 4	3093
15	α Aquilæ W.	87 40 37	3150	89 7 46	3133	90 35 16	3115	92 3 7	3099
	Fomalhaut W.	53 56 35	3107	55 24 36	3072	56 53 20	3039	58 22 44	3007
	α Pegasi W.	40 19 31	3457	41 40 44	3389	43 3 13	3327	44 26 53	3270
	Mars E.	24 20 4	2992	22 49 41	2985	21 19 10	2982	19 48 35	2982
	SUN E.	60 18 0	3005	58 47 53	2987	57 17 24	2969	55 46 33	2950
16	α Aquilæ W.	99 27 6	3027	100 56 45	3015	102 26 39	3005	103 56 46	2995
	Fomalhaut W.	65 59 20	2863	67 32 27	2836	69 6 8	2811	70 40 22	2786
	α Pegasi W.	51 40 50	3030	53 10 25	2991	54 40 49	2953	56 12 1	2917
	Jupiter W.	27 27 38	2574	29 7 9	2554	30 47 7	2535	32 27 32	2516
	SUN E.	48 6 27	2859	46 33 16	2841	44 59 42	2823	43 25 44	2807
17	Fomalhaut W.	78 39 15	2675	80 16 28	2655	81 54 8	2636	83 32 15	2618
	α Pegasi W.	63 58 49	2760	65 34 9	2733	67 10 5	2707	68 46 36	2682
	Jupiter W.	40 56 6	2424	42 39 6	2407	44 22 31	2390	46 6 20	2373
	SUN E.	35 30 24	2724	33 54 16	2709	32 17 48	2695	30 41 2	2683

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Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
		^o ['] ["]		^o ['] ["]		^o ['] ["]		^o ['] ["]	
22	SUN W.	26 23 39	2409	28 7 1	2405	29 50 28	2403	31 33 59	2403
	Regulus E.	30 35 20	2063	28 43 24	2065	26 51 31	2068	24 59 43	2072
	Spica E.	84 22 39	2088	82 31 22	2091	80 40 9	2094	78 49 1	2098
	Saturn E.	122 49 46	2054	120 57 36	2056	119 5 29	2059	117 13 26	2062
23	SUN W.	40 11 9	2417	41 54 20	2422	43 37 23	2429	45 20 17	2435
	Spica E.	69 35 13	2128	67 44 56	2136	65 54 52	2144	64 5 0	2153
	Saturn E.	107 54 52	2088	106 3 35	2096	104 12 29	2103	102 21 34	2111
	Antares E.	115 19 53	2173	113 30 44	2177	111 41 42	2183	109 52 49	2189
24	SUN W.	53 52 4	2479	55 33 46	2489	57 15 14	2500	58 56 28	2511
	Venus W.	24 29 5	2184	26 17 57	2191	28 6 38	2199	29 55 7	2207
	Spica E.	54 59 19	2206	53 11 1	2219	51 23 1	2231	49 35 19	2245
	Saturn E.	93 10 11	2157	91 20 38	2167	89 31 20	2177	87 42 18	2188
	Antares E.	100 51 3	2230	99 3 20	2239	97 15 51	2249	95 28 37	2260
25	SUN W.	67 18 34	2571	68 58 9	2584	70 37 26	2597	72 16 25	2610
	Venus W.	38 54 17	2254	40 41 24	2264	42 28 17	2275	44 14 53	2286
	Spica E.	40 42 6	2320	38 56 36	2338	37 11 32	2356	35 26 54	2375
	Saturn E.	78 41 24	2247	76 54 6	2260	75 7 7	2272	73 20 26	2285
	Antares E.	86 36 34	2319	84 51 2	2331	83 5 48	2344	81 20 53	2357
26	SUN W.	80 26 46	2678	82 3 55	2692	83 40 45	2707	85 17 16	2720
	Venus W.	53 3 56	2341	54 48 56	2353	56 33 39	2364	58 18 6	2374
	Regulus W.	27 34 59	2360	29 19 32	2373	31 3 46	2386	32 47 41	2398
	Saturn E.	64 31 47	2350	62 47 1	2364	61 2 34	2377	59 18 26	2391
	Antares E.	72 41 11	2427	70 58 15	2442	69 15 40	2456	67 33 25	2472
27	SUN W.	93 15 16	2790	94 49 57	2803	96 24 20	2818	97 58 25	2832
	Venus W.	66 56 20	2431	68 39 11	2441	70 21 46	2453	72 4 6	2465
	Regulus W.	41 22 37	2464	43 4 41	2477	44 46 27	2490	46 27 55	2502
	Saturn E.	50 42 36	2458	49 0 23	2471	47 18 29	2485	45 36 55	2498
	Antares E.	59 7 31	2549	57 27 26	2565	55 47 43	2582	54 8 23	2599
	α Aquilæ E.	106 5 57	3002	104 35 46	3006	103 5 40	3011	101 35 42	3018
28	SUN W.	105 44 27	2898	107 16 48	2911	108 48 53	2924	110 20 41	2938
	Venus W.	80 31 55	2517	82 12 45	2527	83 53 21	2537	85 33 43	2547
	Regulus W.	54 50 50	2564	56 30 34	2576	58 10 2	2588	59 49 13	2600
	Saturn E.	37 13 43	2565	35 34 0	2579	33 54 36	2593	32 15 31	2607
	Antares E.	45 57 33	2688	44 20 37	2707	42 44 7	2728	41 8 4	2749
	α Aquilæ E.	94 8 8	3062	92 39 12	3072	91 10 28	3084	89 41 59	3095
29	SUN W.	117 55 41	2999	119 25 55	3011	120 55 54	3023	122 25 38	3035
	Venus W.	93 52 10	2594	95 31 13	2604	97 10 3	2612	98 48 42	2621
	Regulus W.	68 1 11	2656	69 38 50	2668	71 16 13	2678	72 53 22	2689
	Antares E.	33 15 22	2877	31 42 33	2909	30 10 25	2944	28 39 2	2984
	α Aquilæ E.	82 23 23	3163	80 56 30	3180	79 29 57	3196	78 3 43	3213
30	SUN W.	129 50 45	3092	131 19 4	3102	132 47 11	3114	134 15 4	3124
	Venus W.	106 59 1	2662	108 36 32	2669	110 13 53	2677	111 51 3	2685
	Regulus W.	80 55 40	2739	82 31 28	2749	84 7 3	2758	85 42 26	2768
	Spica W.	27 49 24	2854	29 22 42	2853	30 56 1	2853	32 29 21	2855
	α Aquilæ E.	70 57 47	3308	69 33 44	3330	68 10 7	3352	66 46 56	3376
	Fomalhaut E.	104 0 58	3043	102 31 39	3049	101 2 27	3055	99 33 22	3062

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
22	SUN W.	33 17 30	2403	35 1 0	2405	36 44 28	2408	38 27 51	2412
	Regulus E.	23 8 1	2077	21 16 26	2081	19 24 58	2087	17 33 39	2094
	Spica E.	76 57 59	2103	75 7 4	2109	73 16 18	2114	71 25 40	2121
	Saturn E.	115 21 29	2066	113 29 38	2071	111 37 54	2077	109 46 19	2082
23	SUN W.	47 3 2	2443	48 45 35	2451	50 27 57	2460	52 10 7	2469
	Spica E.	62 15 22	2163	60 25 58	2173	58 36 49	2183	56 47 56	2194
	Saturn E.	100 30 51	2119	98 40 20	2128	96 50 3	2137	95 0 0	2146
	Antares E.	108 4 5	2196	106 15 31	2204	104 27 9	2213	102 39 0	2221
24	SUN W.	60 37 2	2522	62 18 8	2535	63 58 33	2546	65 38 42	2558
	Venus W.	31 43 24	2216	33 31 28	2225	35 19 19	2235	37 6 55	2244
	Spica E.	47 47 58	2258	46 0 57	2273	44 14 18	2287	42 28 0	2304
	Saturn E.	85 53 33	2199	84 5 4	2211	82 16 53	2223	80 29 0	2235
	Antares E.	93 41 39	2271	91 54 57	2283	90 8 32	2294	88 22 24	2306
25	SUN W.	73 55 6	2624	75 33 28	2637	77 11 33	2651	78 49 19	2665
	Venus W.	46 1 13	2296	47 47 18	2307	49 33 7	2319	51 18 39	2329
	Spica E.	33 42 44	2396	31 59 4	2418	30 15 55	2442	28 33 20	2469
	Saturn E.	71 34 4	2298	69 48 1	2311	68 2 17	2324	66 16 53	2337
	Antares E.	79 36 17	2371	77 52 1	2385	76 8 4	2399	74 24 28	2412
26	SUN W.	86 53 29	2734	88 29 23	2748	90 4 59	2762	91 40 17	2776
	Venus W.	60 2 18	2386	61 46 12	2397	63 29 51	2408	65 13 14	2420
	Regulus W.	34 31 18	2412	36 14 35	2425	37 57 34	2438	39 40 15	2451
	Saturn E.	57 34 38	2403	55 51 8	2417	54 7 58	2431	52 25 7	2445
	Antares E.	65 51 32	2486	64 9 59	2502	62 28 48	2517	60 47 59	2533
27	SUN W.	99 32 12	2845	101 5 42	2859	102 38 54	2872	104 11 49	2885
	Venus W.	73 46 9	2475	75 27 58	2485	77 9 32	2496	78 50 51	2507
	Regulus W.	48 9 5	2515	49 49 57	2528	51 30 32	2540	53 10 50	2553
	Saturn E.	43 55 39	2512	42 14 42	2525	40 34 3	2539	38 53 44	2552
	Antares E.	52 29 26	2615	50 50 51	2633	49 12 41	2650	47 34 54	2669
	α Aquilæ E.	100 5 51	3026	98 36 10	3033	97 6 38	3042	95 37 17	3052
28	SUN W.	111 52 12	2950	113 23 28	2962	114 54 28	2975	116 25 12	2987
	Venus W.	87 13 51	2557	88 53 45	2567	90 33 26	2576	92 12 54	2585
	Regulus W.	61 28 8	2612	63 6 47	2624	64 45 10	2634	66 23 19	2646
	Saturn E.	30 36 45	2620	28 58 17	2635	27 20 10	2649	25 42 22	2665
	Antares E.	39 32 29	2772	37 57 24	2795	36 22 49	2821	34 48 48	2848
	α Aquilæ E.	88 13 43	3109	86 45 44	3121	85 18 0	3135	83 50 33	3149
29	SUN W.	123 55 8	3047	125 24 23	3058	126 53 24	3069	128 22 11	3080
	Venus W.	100 27 8	2629	102 5 23	2637	103 43 27	2646	105 21 19	2654
	Regulus W.	74 30 17	2699	76 6 58	2709	77 43 26	2720	79 19 40	2730
	Antares E.	27 8 29	3028	25 38 51	3080	24 10 17	3138	22 42 54	3204
	α Aquilæ E.	76 37 49	3230	75 12 15	3248	73 47 3	3267	72 22 13	3288
30	SUN W.	135 42 44	3135	137 10 11	3146	138 37 25	3157	140 4 26	3168
	Venus W.	113 28 3	2692	115 4 54	2699	116 41 35	2707	118 18 6	2714
	Regulus W.	87 17 36	2776	88 52 35	2786	90 27 21	2795	92 1 56	2804
	Spica W.	34 2 38	2857	35 35 52	2860	37 9 2	2863	38 42 8	2866
	α Aquilæ E.	65 24 12	3401	64 1 56	3427	62 40 10	3455	61 18 55	3484
	Fomalhaut E.	98 4 26	3069	96 35 38	3076	95 6 59	3083	93 38 28	3091

AIRY's Day Numbers— For correcting the Places of the Fixed Stars.					Mean Time of Transit of the First Point of Aries.
At Mean Midnight,					
Logarithms of				Value of	
E	F	G	H	L	
1°28122	0°74742	0°15498	1°52470	104°474	^h ^m ^s 19 15 50°92
1°28794	0°73922	0°15593	1°52478	104°155	19 11 55°01
1°29460	0°73131	0°15689	1°52485	103°830	19 7 59°10
1°30118	0°72368	0°15785	1°52492	103°496	19 4 3°19
1°30769	0°71638	0°15881	1°52498	103°153	19 0 7°28
1°31415	0°70943	0°15977	1°52503	102°803	18 56 11°37
1°32053	0°70285	0°16074	1°52507	102°445	18 52 15°46
1°32682	0°69667	0°16171	1°52511	102°078	18 48 19°55
1°33306	0°69088	0°16268	1°52514	101°706	18 44 23°64
1°33922	0°68551	0°16365	1°52517	101°325	18 40 27°72
1°34530	0°68058	0°16462	1°52519	100°936	18 36 31°81
1°35134	0°67611	0°16559	1°52520	100°542	18 32 35°90
1°35730	0°67211	0°16656	1°52520	100°140	18 28 39°99
1°36317	0°66861	0°16752	1°52520	99°731	18 24 44°08
1°36900	0°66561	0°16849	1°52519	99°316	18 20 48°17
1°37475	0°66313	0°16946	1°52516	98°894	18 16 52°25
1°38042	0°66117	0°17043	1°52513	98°464	18 12 56°34
1°38604	0°65975	0°17140	1°52509	98°029	18 9 0°43
1°39158	0°65885	0°17237	1°52505	97°587	18 5 4°52
1°39703	0°65847	0°17334	1°52500	97°138	18 1 8°61
1°40244	0°65863	0°17430	1°52494	96°685	17 57 12°70
1°40777	0°65935	0°17526	1°52487	96°224	17 53 16°79
1°41303	0°66064	0°17622	1°52480	95°758	17 49 20°88
1°41824	0°66246	0°17717	1°52472	95°287	17 45 24°97
1°42337	0°66477	0°17812	1°52463	94°810	17 41 29°05
1°42843	0°66755	0°17906	1°52452	94°328	17 37 33°14
1°43344	0°67086	0°18000	1°52441	93°841	17 33 37°23
1°43837	0°67469	0°18094	1°52429	93°349	17 29 41°32
1°44322	0°67902	0°18187	1°52417	92°851	17 25 45°41
1°44802	0°68381	0°18280	1°52404	92°350	17 21 49°50
1°45275	0°68901	0°18373	1°52390	91°843	17 17 53°59

Day of the Month.	BESSER's Day Numbers— For correcting the Places of the Fixed Stars.				Days elapsed of the Julian Period at Mean Noon.	Mean Equinoctial Time, adding 0 ^h .369681. Days.	From Mean Noon of January 1.	
	At Mean Midnight,						Day of the Year.	Fraction of the Year.*
	Logarithms of							
	A	B	C	D				
1	—0 ^h .7703	—1 ^h .2880	+9 ^h .3595	+0 ^h .9281	2403485	71	152	.4162
2	0 ^h .7477	1 ^h .2904	9 ^h .3654	0 ^h .9284	2403486	72	153	.4189
3	0 ^h .7238	1 ^h .2926	9 ^h .3713	0 ^h .9287	2403487	73	154	.4216
4	—0 ^h .6984	—1 ^h .2946	+9 ^h .3771	+0 ^h .9289	2403488	74	155	.4244
5	0 ^h .6713	1 ^h .2966	9 ^h .3829	0 ^h .9292	2403489	75	156	.4271
6	0 ^h .6422	1 ^h .2984	9 ^h .3886	0 ^h .9294	2403490	76	157	.4299
7	—0 ^h .6109	—1 ^h .3000	+9 ^h .3943	+0 ^h .9295	2403491	77	158	.4326
8	0 ^h .5771	1 ^h .3016	9 ^h .3999	0 ^h .9297	2403492	78	159	.4353
9	0 ^h .5403	1 ^h .3030	9 ^h .4055	0 ^h .9298	2403493	79	160	.4381
10	—0 ^h .5000	—1 ^h .3043	+9 ^h .4110	+0 ^h .9299	2403494	80	161	.4408
11	0 ^h .4554	1 ^h .3055	9 ^h .4165	0 ^h .9300	2403495	81	162	.4435
12	0 ^h .4056	1 ^h .3066	9 ^h .4219	0 ^h .9301	2403496	82	163	.4463
13	—0 ^h .3491	—1 ^h .3075	+9 ^h .4272	+0 ^h .9301	2403497	83	164	.4490
14	0 ^h .2841	1 ^h .3083	9 ^h .4325	0 ^h .9300	2403498	84	165	.4518
15	0 ^h .2075	1 ^h .3090	9 ^h .4377	0 ^h .9300	2403499	85	166	.4545
16	—0 ^h .1143	—1 ^h .3095	+9 ^h .4429	+0 ^h .9299	2403500	86	167	.4572
17	9 ^h .9953	1 ^h .3100	9 ^h .4481	0 ^h .9298	2403501	87	168	.4600
18	9 ^h .8306	1 ^h .3103	9 ^h .4532	0 ^h .9296	2403502	88	169	.4627
19	—9 ^h .5619	—1 ^h .3105	+9 ^h .4582	+0 ^h .9295	2403503	89	170	.4654
20	—8 ^h .7184	1 ^h .3106	9 ^h .4632	0 ^h .9293	2403504	90	171	.4682
21	+9 ^h .4151	1 ^h .3106	9 ^h .4681	0 ^h .9290	2403505	91	172	.4709
22	+9 ^h .7576	—1 ^h .3104	+9 ^h .4729	+0 ^h .9288	2403506	92	173	.4737
23	9 ^h .9466	1 ^h .3101	9 ^h .4777	0 ^h .9285	2403507	93	174	.4764
24	0 ^h .0777	1 ^h .3097	9 ^h .4824	0 ^h .9281	2403508	94	175	.4791
25	+0 ^h .1782	—1 ^h .3092	+9 ^h .4871	+0 ^h .9277	2403509	95	176	.4819
26	0 ^h .2597	1 ^h .3085	9 ^h .4917	0 ^h .9273	2403510	96	177	.4846
27	0 ^h .3281	1 ^h .3078	9 ^h .4963	0 ^h .9269	2403511	97	178	.4873
28	+0 ^h .3871	—1 ^h .3069	+9 ^h .5008	+0 ^h .9264	2403512	98	179	.4901
29	0 ^h .4389	1 ^h .3059	9 ^h .5053	0 ^h .9259	2403513	99	180	.4928
30	0 ^h .4851	1 ^h .3048	9 ^h .5097	0 ^h .9254	2403514	100	181	.4956
31	+0 ^h .5267	—1 ^h .3035	+9 ^h .5141	+0 ^h .9248	2403515	101	182	.4983

* Add .0012 if Fraction be required for the time 4, see page 329.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be added to Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
		^h ^m ^s	^s	[°] ['] ["]	["]	^m ^s	^m ^s	^s
Wed.	1	6 42 51.94	10.332	N.23 5 18.3	10.58	1 8.75	3 35.44	0.475
Thur.	2	6 46 59.78	10.310	23 0 52.2	11.59	1 8.71	3 46.69	0.463
Frid.	3	6 51 7.32	10.307	22 56 2.1	12.59	1 8.67	3 57.65	0.450
Sat.	4	6 55 14.56	10.294	22 50 48.0	13.58	1 8.63	4 8.30	0.436
Sun.	5	6 59 21.47	10.281	22 45 10.1	14.57	1 8.59	4 18.62	0.423
Mon.	6	7 3 28.04	10.266	22 39 8.5	15.56	1 8.54	4 28.60	0.408
Tues.	7	7 7 34.25	10.251	22 32 43.3	16.54	1 8.49	4 38.22	0.393
Wed.	8	7 11 40.07	10.235	22 25 54.7	17.51	1 8.43	4 47.47	0.377
Thur.	9	7 15 45.51	10.218	22 18 42.8	18.48	1 8.37	4 56.33	0.361
Frid.	10	7 19 50.54	10.201	22 11 7.8	19.43	1 8.31	5 4.79	0.344
Sat.	11	7 23 55.15	10.183	22 3 10.0	20.38	1 8.25	5 12.83	0.326
Sun.	12	7 27 59.33	10.165	21 54 49.4	21.33	1 8.18	5 20.44	0.308
Mon.	13	7 32 3.08	10.147	21 46 6.1	22.27	1 8.12	5 27.60	0.289
Tues.	14	7 36 6.37	10.127	21 37 0.5	23.19	1 8.05	5 34.30	0.269
Wed.	15	7 40 9.18	10.107	21 27 32.8	24.11	1 7.98	5 40.53	0.250
Thur.	16	7 44 11.50	10.086	21 17 43.2	25.02	1 7.91	5 46.29	0.230
Frid.	17	7 48 13.33	10.065	21 7 31.9	25.92	1 7.83	5 51.55	0.209
Sat.	18	7 52 14.64	10.044	20 56 59.0	26.81	1 7.75	5 56.30	0.187
Sun.	19	7 56 15.42	10.021	20 46 4.9	27.69	1 7.68	6 0.51	0.164
Mon.	20	8 0 15.65	9.998	20 34 49.9	28.56	1 7.60	6 4.16	0.140
Tues.	21	8 4 15.31	9.974	20 23 14.1	29.42	1 7.52	6 7.25	0.117
Wed.	22	8 8 14.39	9.949	20 11 17.8	30.27	1 7.44	6 9.78	0.094
Thur.	23	8 12 12.89	9.925	19 59 1.3	31.10	1 7.36	6 11.72	0.069
Frid.	24	8 16 10.78	9.899	19 46 24.8	31.93	1 7.28	6 13.04	0.043
Sat.	25	8 20 8.06	9.874	19 33 28.5	32.75	1 7.20	6 13.76	0.017
Sun.	26	8 24 4.72	9.848	19 20 12.8	33.56	1 7.11	6 13.88	0.008
Mon.	27	8 28 0.78	9.823	19 6 37.9	34.35	1 7.03	6 13.39	0.034
Tues.	28	8 31 56.22	9.797	18 52 44.1	35.13	1 6.94	6 12.27	0.059
Wed.	29	8 35 51.03	9.771	18 38 31.7	35.90	1 6.86	6 10.54	0.085
Thur.	30	8 39 45.24	9.746	18 24 0.9	36.66	1 6.77	6 8.19	0.111
Frid.	31	8 43 38.82	9.720	18 9 12.1	37.41	1 6.68	6 5.22	0.136
Sat.	32	8 47 31.78	9.694	N.17 54 5.4	38.14	1 6.59	6 1.64	0.162

* Mean Time of the Semidiameter passing may be found by subtracting 0.19 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be subtracted from Mean Time.	Sidereal Time.
		Apparent Right Ascension.	Apparent Declination.	Semidiam.*		
Wed.	1	^h 6 ^m 42 ^s 51 ³²	N. 23 [°] 5 ['] 18 ⁹	15 46 ⁰	^m 3 35 ⁴¹	^h 6 39 15 ⁹¹
Thur.	2	6 46 59 ¹³	23 0 52 ⁹	15 46 ⁰	3 46 ⁶⁶	6 43 12 ⁴⁷
Frid.	3	6 51 6 ⁶⁴	22 56 2 ⁹	15 46 ⁰	3 57 ⁶²	6 47 9 ⁰²
Sat.	4	6 55 13 ⁸⁵	22 50 48 ⁹	15 46 ⁰	4 8 ²⁷	6 51 5 ⁵⁸
Sun.	5	6 59 20 ⁷³	22 45 11 ¹	15 46 ⁰	4 18 ⁵⁹	6 55 2 ¹⁴
Mon.	6	7 3 27 ²⁷	22 39 9 ⁶	15 46 ⁰	4 28 ⁵⁷	6 58 58 ⁷⁰
Tues.	7	7 7 33 ⁴⁵	22 32 44 ⁶	15 46 ⁰	4 38 ¹⁹	7 2 55 ²⁶
Wed.	8	7 11 39 ²⁵	22 25 56 ¹	15 46 ⁰	4 47 ⁴⁴	7 6 51 ⁸¹
Thur.	9	7 15 44 ⁶⁷	22 18 44 ³	15 46 ¹	4 56 ³⁰	7 10 48 ³⁷
Frid.	10	7 19 49 ⁶⁸	22 11 9 ⁴	15 46 ¹	5 4 ⁷⁶	7 14 44 ⁹²
Sat.	11	7 23 54 ²⁷	22 3 11 ⁷	15 46 ¹	5 12 ⁸⁰	7 18 41 ⁴⁷
Sun.	12	7 27 58 ⁴³	21 54 51 ²	15 46 ²	5 20 ⁴⁰	7 22 38 ⁰³
Mon.	13	7 32 2 ¹⁶	21 46 8 ¹	15 46 ²	5 27 ⁵⁷	7 26 34 ⁵⁹
Tues.	14	7 36 5 ⁴³	21 37 2 ⁷	15 46 ³	5 34 ²⁸	7 30 31 ¹⁵
Wed.	15	7 40 8 ²²	21 27 35 ¹	15 46 ³	5 40 ⁵¹	7 34 27 ⁷¹
Thur.	16	7 44 10 ⁵³	21 17 45 ⁶	15 46 ⁴	5 46 ²⁷	7 38 24 ²⁶
Frid.	17	7 48 12 ³⁵	21 7 34 ⁴	15 46 ⁵	5 51 ⁵³	7 42 20 ⁸²
Sat.	18	7 52 13 ⁶⁵	20 57 1 ⁶	15 46 ⁶	5 56 ²⁸	7 46 17 ³⁷
Sun.	19	7 56 14 ⁴²	20 46 7 ⁶	15 46 ⁶	6 0 ⁴⁹	7 50 13 ⁹³
Mon.	20	8 0 14 ⁶⁴	20 34 52 ⁷	15 46 ⁷	6 4 ¹⁵	7 54 10 ⁴⁹
Tues.	21	8 4 14 ²⁹	20 23 17 ¹	15 46 ⁷	6 7 ²⁵	7 58 7 ⁰⁴
Wed.	22	8 8 13 ³⁷	20 11 21 ⁰	15 46 ⁸	6 9 ⁷⁷	8 2 3 ⁶⁰
Thur.	23	8 12 11 ⁸⁶	19 59 4 ⁶	15 46 ⁹	6 11 ⁷¹	8 6 0 ¹⁵
Frid.	24	8 16 9 ⁷⁵	19 46 28 ¹	15 47 ⁰	6 13 ⁰⁴	8 9 56 ⁷¹
Sat.	25	8 20 7 ⁰³	19 33 31 ⁹	15 47 ¹	6 13 ⁷⁶	8 13 53 ²⁷
Sun.	26	8 24 3 ⁷⁰	19 20 16 ³	15 47 ²	6 13 ⁸⁸	8 17 49 ⁸²
Mon.	27	8 27 59 ⁷⁶	19 6 41 ⁵	15 47 ³	6 13 ³⁹	8 21 46 ³⁷
Tues.	28	8 31 55 ²¹	18 52 47 ⁸	15 47 ⁴	6 12 ²⁸	8 25 42 ⁹³
Wed.	29	8 35 50 ⁰³	18 38 35 ⁴	15 47 ⁶	6 10 ⁵⁵	8 29 39 ⁴⁸
Thur.	30	8 39 44 ²⁴	18 24 4 ⁷	15 47 ⁷	6 8 ²⁰	8 33 36 ⁰⁴
Frid.	31	8 43 37 ⁸³	18 9 15 ⁹	15 47 ⁸	6 5 ²³	8 37 32 ⁶⁰
Sat.	32	8 47 30 ⁸¹	N. 17 54 9 ³	15 48 ⁰	6 1 ⁶⁶	8 41 29 ¹⁵

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	99 50 48.2	N. 0° 81	0.00072188	15 12.4	15 8.5	55 42.8	55 28.5
2	100 47 58.8	0° 79	0.00072181	15 5.0	15 1.5	55 15.2	55 2.9
3	101 45 9.3	0° 75	0.00072159	14 58.4	14 55.6	54 51.6	54 41.3
4	102 42 19.8	0° 68	0.00072121	14 53.1	14 50.9	54 32.1	54 23.9
5	103 39 30.4	0° 60	0.00072068	14 49.0	14 47.3	54 16.9	54 11.0
6	104 36 41.0	0° 50	0.00072000	14 46.1	14 45.3	54 6.5	54 3.4
7	105 33 51.8	0° 40	0.00071917	14 44.8	14 44.8	54 1.7	54 1.8
8	106 31 2.9	0° 28	0.00071818	14 45.3	14 46.3	54 3.6	54 7.2
9	107 28 14.3	0° 16	0.00071702	14 47.8	14 49.9	54 12.8	54 20.4
10	108 25 26.0	N. 0° 06	0.00071569	14 52.6	14 55.9	54 30.3	54 42.3
11	109 22 38.3	S. 0° 06	0.00071419	14 59.8	15 4.4	54 56.7	55 13.3
12	110 19 51.2	0° 16	0.00071250	15 9.5	15 15.2	55 32.2	55 53.2
13	111 17 4.7	0° 23	0.00071061	15 21.5	15 28.3	56 16.2	56 41.0
14	112 14 18.8	0° 28	0.00070852	15 35.5	15 43.0	57 7.4	57 35.0
15	113 11 33.6	0° 31	0.00070622	15 50.8	15 58.5	58 3.3	58 31.8
16	114 8 49.2	0° 30	0.00070368	16 6.2	16 13.7	59 0.0	59 27.2
17	115 6 5.5	0° 26	0.00070089	16 20.6	16 26.9	59 52.8	60 15.9
18	116 3 22.5	0° 18	0.00069784	16 32.4	16 36.9	60 35.9	60 52.3
19	117 0 40.1	S. 0° 08	0.00069453	16 40.2	16 42.3	61 4.5	61 12.1
20	117 57 58.2	N. 0° 05	0.00069096	16 43.0	16 42.4	61 14.8	61 12.7
21	118 55 16.8	0° 19	0.00068712	16 40.6	16 37.5	61 5.9	60 54.6
22	119 52 35.8	0° 34	0.00068302	16 33.4	16 28.3	60 39.4	60 20.8
23	120 49 55.3	0° 48	0.00067866	16 22.4	16 16.0	59 59.3	59 35.8
24	121 47 15.2	0° 60	0.00067407	16 9.1	16 2.1	59 10.7	58 44.8
25	122 44 35.5	0° 69	0.00066926	15 54.9	15 47.8	58 18.6	57 52.5
26	123 41 56.3	0° 76	0.00066424	15 40.9	15 34.2	57 27.2	57 2.7
27	124 39 17.6	0° 80	0.00065902	15 27.9	15 21.9	56 39.5	56 17.7
28	125 36 39.4	0° 81	0.00065363	15 16.4	15 11.3	55 57.4	55 38.8
29	126 34 1.8	0° 79	0.00064809	15 6.7	15 2.6	55 21.9	55 6.7
30	127 31 24.9	0° 75	0.00064238	14 58.8	14 55.6	54 53.1	54 41.2
31	128 28 48.7	0° 68	0.00063652	14 52.8	14 50.4	54 30.9	54 22.0
32	129 26 13.2	N. 0° 60	0.00063053	14 48.3	14 46.7	54 14.6	54 8.6

MEAN TIME.

MEAN TIME.									
THE MOON'S									
Day of the Week.	Day of the Month.	Longitude.		Latitude.		Age.	Meridian		
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.		
		^o ['] ["]	^o ['] ["]	^o ['] ["]	^o ['] ["]	^d	^h ^m		
Wed.	1	241 39 23.5	247 56 35.5	N.5 6 52.7	N.5 2 20.2	10.9	9 42.3		
Thur.	2	254 10 53.3	260 22 24.8	4 54 12.8	4 42 40.4	11.9	10 31.4		
Frid.	3	266 31 17.9	272 37 40.9	4 27 54.8	4 10 9.6	12.9	11 20.7		
Sat.	4	278 41 42.7	284 43 33.1	3 49 39.6	3 26 40.5	13.9	12 9.6		
Sun.	5	290 43 23.1	296 41 25.3	3 1 29.3	2 34 23.8	14.9	12 57.7		
Mon.	6	302 37 54.3	308 33 6.9	2 5 41.9	1 35 42.0	15.9	13 44.5		
Tues.	7	314 27 21.9	320 21 0.9	1 4 42.7	N.0 33. 2.6	16.9	14 29.9		
Wed.	8	326 14 27.3	332 8 7.1	N.0 1 0.2	S.0 31 6.1	17.9	15 14.2		
Thur.	9	338 2 29.2	343 58 3.8	S.1 2 57.8	1 34 16.7	18.9	15 57.5		
Frid.	10	349 55 23.6	355 55 2.8	2 4 44.4	2 34 2.4	19.9	16 40.5		
Sat.	11	1 57 36.8	8 3 41.7	3 1 52.2	3 27 54.7	20.9	17 23.9		
Sun.	12	14 13 53.9	20 28 49.2	3 51 50.5	4 13 19.9	21.9	18 8.7		
Mon.	13	26 49 1.3	33 15 1.9	4 32 2.4	4 47 37.9	22.9	18 55.5		
Tues.	14	39 47 18.6	46 26 14.1	4 59 45.8	5 8 6.4	23.9	19 45.3		
Wed.	15	53 12 4.6	60 4 57.9	5 12 20.8	5 12 12.3	24.9	20 38.7		
Thur.	16	67 4 53.5	74 11 39.5	5 7 27.1	4 57 55.4	25.9	21 35.9		
Frid.	17	81 24 53.7	88 44 2.2	4 43 33.2	4 24 22.7	26.9	22 36.2		
Sat.	18	96 8 20.2	103 36 53.1	4 0 33.6	3 32 24.1	27.9	23 38.3		
Sun.	19	111 8 37.9	118 42 26.1	3 0 20.2	2 24 56.2	28.9	6		
Mon.	20	126 17 5.7	133 51 24.7	1 46 52.8	S.1 6 55.9	0.6	0 40.3		
Tues.	21	141 24 13.5	148 54 28.0	S.0 25 54.1	N.0 15 22.4	1.6	1 40.4		
Wed.	22	156 21 11.1	163 43 34.3	N.0 56 5.4	1 35 29.4	2.6	2 37.7		
Thur.	23	171 0 58.9	178 12 56.4	2 12 53.6	2 47 43.0	3.6	3 32.0		
Frid.	24	185 19 7.1	192 19 20.8	3 19 28.4	3 47 46.7	4.6	4 23.9		
Sat.	25	199 13 35.4	206 1 55.0	4 12 20.8	4 32 59.0	5.6	5 13.9		
Sun.	26	212 44 29.4	219 21 33.0	4 49 34.0	5 2 2.7	6.6	6 2.9		
Mon.	27	225 53 23.4	232 20 20.4	5 10 25.7	5 14 46.0	7.6	6 51.4		
Tues.	28	238 42 45.3	245 1 0.0	5 15 9.3	5 11 43.1	8.6	7 40.0		
Wed.	29	251 15 26.8	257 26 27.5	5 4 36.7	4 54 0.4	9.6	8 28.8		
Thur.	30	263 34 23.1	269 39 34.2	4 40 6.5	4 23 7.8	10.6	9 17.7		
Frid.	31	275 42 20.4	281 43 0.2	4 3 18.4	3 40 53.3	11.6	10 6.4		
Sat.	32	287 41 51.4	293 39 11.0	N.3 16 8.3	N.2 49 20.3	12.6	10 54.5		

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.			Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.			Declination.	Diff. Dec. for 10 ^m .				
WEDNESDAY 1.						FRIDAY 3.									
	^h	^m	^s	[°]	[']	["]		^h	^m	^s	[°]	[']	["]		
0	16	2	27.28	S. 15	29	34.5	63.84	0	17	45	20.01	S. 18	56	40.1	21.37
1	16	4	35.06	15	35	55.2	63.04	1	17	47	28.98	18	58	45.5	20.43
2	16	6	42.89	15	42	11.0	62.23	2	17	49	37.93	19	0	45.3	19.50
3	16	8	50.76	15	48	21.9	61.42	3	17	51	46.87	19	2	39.5	18.56
4	16	10	58.68	15	54	28.0	60.60	4	17	53	55.80	19	4	28.1	17.62
5	16	13	6.64	16	0	29.1	59.77	5	17	56	4.70	19	6	11.0	16.68
6	16	15	14.65	16	6	25.2	58.94	6	17	58	13.59	19	7	48.3	15.74
7	16	17	22.70	16	12	16.4	58.11	7	18	0	22.45	19	9	19.9	14.80
8	16	19	30.80	16	18	2.6	57.27	8	18	2	31.29	19	10	45.9	13.86
9	16	21	38.95	16	23	43.7	56.43	9	18	4	40.11	19	12	6.3	12.92
10	16	23	47.13	16	29	19.8	55.59	10	18	6	48.89	19	13	21.0	11.98
11	16	25	55.36	16	34	50.8	54.74	11	18	8	57.65	19	14	30.1	11.04
12	16	28	3.63	16	40	16.7	53.89	12	18	11	6.37	19	15	33.5	10.10
13	16	30	11.94	16	45	37.5	53.04	13	18	13	15.06	19	16	31.3	9.16
14	16	32	20.30	16	50	53.2	52.18	14	18	15	23.72	19	17	23.5	8.22
15	16	34	28.69	16	56	3.7	51.32	15	18	17	32.33	19	18	10.0	7.28
16	16	36	37.12	17	1	9.0	50.46	16	18	19	40.91	19	18	50.9	6.35
17	16	38	45.59	17	6	9.2	49.59	17	18	21	49.45	19	19	26.2	5.42
18	16	40	54.09	17	11	4.1	48.71	18	18	23	57.94	19	19	55.9	4.48
19	16	43	2.63	17	15	53.7	47.83	19	18	26	6.38	19	20	20.0	3.54
20	16	45	11.21	17	20	38.1	46.96	20	18	28	14.78	19	20	38.4	2.60
21	16	47	19.82	17	25	17.2	46.08	21	18	30	23.13	19	20	51.2	1.67
22	16	49	28.46	17	29	51.1	45.20	22	18	32	31.42	19	20	58.5	0.74
23	16	51	37.14	S. 17	34	19.6	44.30	23	18	34	39.66	S. 19	21	0.1	0.20
THURSDAY 2.						SATURDAY 4.									
0	16	53	45.84	S. 17	38	42.7	43.41	0	18	36	47.85	S. 19	20	56.1	1.13
1	16	55	54.57	17	43	0.5	42.52	1	18	38	55.98	19	20	46.6	2.05
2	16	58	3.33	17	47	12.9	41.63	2	18	41	4.04	19	20	31.5	2.98
3	17	0	12.12	17	51	20.0	40.73	3	18	43	12.04	19	20	10.8	3.91
4	17	2	20.93	17	55	21.6	39.82	4	18	45	19.98	19	19	44.6	4.83
5	17	4	29.76	17	59	17.8	38.92	5	18	47	27.86	19	19	12.8	5.76
6	17	6	38.62	18	3	8.6	38.01	6	18	49	35.66	19	18	35.5	6.68
7	17	8	47.50	18	6	54.0	37.10	7	18	51	43.40	19	17	52.7	7.59
8	17	10	56.39	18	10	33.8	36.18	8	18	53	51.06	19	17	4.4	8.51
9	17	13	5.30	18	14	8.2	35.28	9	18	55	58.65	19	16	10.6	9.43
10	17	15	14.23	18	17	37.2	34.36	10	18	58	6.16	19	15	11.3	10.34
11	17	17	23.17	18	21	0.6	33.44	11	19	0	13.60	19	14	6.5	11.25
12	17	19	32.13	18	24	18.5	32.53	12	19	2	20.95	19	12	56.3	12.16
13	17	21	41.10	18	27	30.9	31.61	13	19	4	28.22	19	11	40.6	13.07
14	17	23	50.08	18	30	37.8	30.68	14	19	6	35.41	19	10	19.5	13.97
15	17	25	59.07	18	33	39.1	29.75	15	19	8	42.52	19	8	53.0	14.87
16	17	28	8.06	18	36	34.8	28.83	16	19	10	49.54	19	7	21.0	15.77
17	17	30	17.06	18	39	25.0	27.91	17	19	12	56.47	19	5	43.7	16.66
18	17	32	26.06	18	42	9.7	26.98	18	19	15	3.31	19	4	1.1	17.56
19	17	34	35.06	18	44	48.7	26.04	19	19	17	10.05	19	2	13.0	18.46
20	17	36	44.06	18	47	22.2	25.11	20	19	19	16.71	19	0	19.6	19.34
21	17	38	53.06	18	49	50.0	24.18	21	19	21	23.27	18	58	20.9	20.22
22	17	41	2.05	18	52	12.3	23.25	22	19	23	29.73	18	56	16.9	21.11
23	17	43	11.04	18	54	29.0	22.31	23	19	25	36.09	18	54	7.6	21.99
24	17	45	20.01	S. 18	56	40.1	21.37	24	19	27	42.36	S. 18	51	53.0	22.87

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SUNDAY 5.				TUESDAY 7.			
0	^h 19 ^m 27 ^s 42.36	S. 18 51 53.0	22.87	0	^h 21 ^m 6 ^s 23.92	S. 15 28 21.6	60.25
1	19 29 48.52	18 49 33.2	23.74	1	21 8 24.14	15 22 18.1	60.92
2	19 31 54.58	18 47 8.1	24.61	2	21 10 24.23	15 16 10.6	61.58
3	19 34 0.54	18 44 37.8	25.48	3	21 12 24.19	15 9 59.2	62.23
4	19 36 6.39	18 42 2.3	26.35	4	21 14 24.03	15 3 43.9	62.88
5	19 38 12.13	18 39 21.6	27.21	5	21 16 23.73	14 57 24.7	63.53
6	19 40 17.77	18 36 35.8	28.06	6	21 18 23.31	14 51 1.6	64.16
7	19 42 23.29	18 33 44.9	28.91	7	21 20 22.76	14 44 34.8	64.79
8	19 44 28.70	18 30 48.8	29.76	8	21 22 22.09	14 38 4.1	65.42
9	19 46 34.00	18 27 47.7	30.61	9	21 24 21.29	14 31 29.7	66.04
10	19 48 39.19	18 24 41.5	31.46	10	21 26 20.36	14 24 51.6	66.66
11	19 50 44.26	18 21 30.2	32.29	11	21 28 19.31	14 18 9.8	67.27
12	19 52 49.22	18 18 14.0	33.13	12	21 30 18.13	14 11 24.3	67.88
13	19 54 54.06	18 14 52.7	33.96	13	21 32 16.83	14 4 35.2	68.48
14	19 56 58.78	18 11 26.5	34.78	14	21 34 15.42	13 57 42.5	69.08
15	19 59 3.38	18 7 55.3	35.61	15	21 36 13.88	13 50 46.2	69.68
16	20 1 7.86	18 4 19.2	36.43	16	21 38 12.22	13 43 46.4	70.26
17	20 3 12.22	18 0 38.2	37.23	17	21 40 10.45	13 36 43.1	70.84
18	20 5 16.46	17 56 52.4	38.04	18	21 42 8.55	13 29 36.3	71.42
19	20 7 20.58	17 53 1.7	38.86	19	21 44 6.54	13 22 26.1	71.99
20	20 9 24.57	17 49 6.1	39.66	20	21 46 4.41	13 15 12.4	72.56
21	20 11 28.43	17 45 5.8	40.45	21	21 48 2.17	13 7 55.4	73.11
22	20 13 32.17	17 41 0.7	41.25	22	21 49 59.82	13 0 35.1	73.66
23	20 15 35.79	S. 17 36 50.8	42.04	23	21 51 57.35	S. 12 53 11.5	74.21
MONDAY 6.				WEDNESDAY 8.			
0	20 17 39.27	S. 17 32 36.2	42.83	0	21 53 54.77	S. 12 45 44.6	74.75
1	20 19 42.63	17 28 16.9	43.61	1	21 55 52.08	12 38 14.5	75.29
2	20 21 45.87	17 23 53.0	44.38	2	21 57 49.29	12 30 41.1	75.83
3	20 23 48.97	17 19 24.4	45.16	3	21 59 46.39	12 23 4.5	76.36
4	20 25 51.95	17 14 51.1	45.93	4	22 1 43.39	12 15 24.8	76.88
5	20 27 54.80	17 10 13.3	46.68	5	22 3 40.28	12 7 42.0	77.39
6	20 29 57.51	17 5 31.0	47.43	6	22 5 37.07	11 59 56.1	77.91
7	20 32 0.10	17 0 44.1	48.19	7	22 7 33.76	11 52 7.1	78.42
8	20 34 2.56	16 55 52.7	48.93	8	22 9 30.35	11 44 15.1	78.92
9	20 36 4.88	16 50 56.9	49.68	9	22 11 26.85	11 36 20.1	79.42
10	20 38 7.07	16 45 56.6	50.42	10	22 13 23.25	11 28 22.1	79.91
11	20 40 9.13	16 40 51.8	51.16	11	22 15 19.55	11 20 21.2	80.39
12	20 42 11.06	16 35 42.7	51.88	12	22 17 15.77	11 12 17.4	80.87
13	20 44 12.86	16 30 29.2	52.61	13	22 19 11.89	11 4 10.7	81.35
14	20 46 14.52	16 25 11.4	53.33	14	22 21 7.92	10 56 1.2	81.82
15	20 48 16.05	16 19 49.3	54.04	15	22 23 3.87	10 47 48.9	82.28
16	20 50 17.45	16 14 22.9	54.75	16	22 24 59.73	10 39 33.8	82.74
17	20 52 18.72	16 8 52.3	55.45	17	22 26 55.50	10 31 16.0	83.20
18	20 54 19.86	16 3 17.5	56.15	18	22 28 51.20	10 22 55.4	83.65
19	20 56 20.86	15 57 38.5	56.85	19	22 30 46.82	10 14 32.2	84.09
20	20 58 21.74	15 51 55.3	57.54	20	22 32 42.36	10 6 6.3	84.53
21	21 0 22.48	15 46 8.0	58.23	21	22 34 37.82	9 57 37.9	84.96
22	21 2 23.09	15 40 16.6	58.91	22	22 36 33.21	9 49 6.8	85.39
23	21 4 23.57	15 34 21.1	59.58	23	22 38 28.53	9 40 33.2	85.81
24	21 6 23.92	S. 15 28 21.6	60.25	24	22 40 23.78	S. 9 31 57.1	86.23

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 9.				SATURDAY 11.			
0	h m s 22 40 23.78	S. 9 31 57.1	86.23	0	h m s 0 12 1.07	S. 2 0 3.3	100.01
1	22 42 18.96	9 23 18.5	86.64	1	0 13 55.97	1 50 2.8	100.16
2	22 44 14.08	9 14 37.4	87.05	2	0 15 50.94	1 40 1.4	100.31
3	22 46 9.13	9 5 53.9	87.44	3	0 17 45.97	1 29 59.1	100.45
4	22 48 4.13	8 57 8.1	87.84	4	0 19 41.08	1 19 56.0	100.58
5	22 49 59.06	8 48 19.8	88.24	5	0 21 36.26	1 9 52.1	100.72
6	22 51 53.94	8 39 29.2	88.62	6	0 23 31.51	0 59 47.4	100.85
7	22 53 48.77	8 30 36.4	88.99	7	0 25 26.85	0 49 41.9	100.97
8	22 55 43.54	8 21 41.3	89.37	8	0 27 22.27	0 39 35.8	101.07
9	22 57 38.26	8 12 43.9	89.75	9	0 29 17.78	0 29 29.1	101.17
10	22 59 32.94	8 3 44.3	90.11	10	0 31 13.38	0 19 21.7	101.28
11	23 1 27.57	7 54 42.6	90.47	11	0 33 9.07	S. 0 9 13.7	101.38
12	23 3 22.15	7 45 38.7	90.83	12	0 35 4.86	N. 0 0 54.9	101.46
13	23 5 16.70	7 36 32.7	91.17	13	0 37 0.75	0 11 3.9	101.54
14	23 7 11.21	7 27 24.7	91.51	14	0 38 56.74	0 21 13.4	101.62
15	23 9 5.68	7 18 14.6	91.85	15	0 40 52.83	0 31 23.4	101.70
16	23 11 0.13	7 9 2.5	92.18	16	0 42 49.04	0 41 33.8	101.76
17	23 12 54.54	6 59 48.4	92.51	17	0 44 45.36	0 51 44.5	101.82
18	23 14 48.92	6 50 32.3	92.83	18	0 46 41.79	1 1 55.6	101.87
19	23 16 43.28	6 41 14.4	93.15	19	0 48 38.35	1 12 7.0	101.92
20	23 18 37.62	6 31 54.5	93.47	20	0 50 35.03	1 22 18.6	101.96
21	23 20 31.93	6 22 32.8	93.77	21	0 52 31.83	1 32 30.5	101.99
22	23 22 26.23	6 13 9.3	94.07	22	0 54 28.77	1 42 42.5	102.01
23	23 24 20.52	S. 6 3 44.0	94.37	23	0 56 25.84	N. 1 52 54.6	102.03
FRIDAY 10.				SUNDAY 12.			
0	23 26 14.79	S. 5 54 16.9	94.66	0	0 58 23.04	N. 2 3 6.9	102.05
1	23 28 9.05	5 44 48.1	94.94	1	1 0 20.39	2 13 19.2	102.06
2	23 30 3.31	5 35 17.6	95.22	2	1 2 17.88	2 23 31.6	102.06
3	23 31 57.57	5 25 45.4	95.50	3	1 4 15.51	2 33 43.9	102.05
4	23 33 51.82	5 16 11.6	95.77	4	1 6 13.30	2 43 56.2	102.04
5	23 35 46.07	5 6 36.2	96.03	5	1 8 11.24	2 54 8.4	102.02
6	23 37 40.33	4 56 59.2	96.29	6	1 10 9.34	3 4 20.4	101.99
7	23 39 34.60	4 47 20.7	96.54	7	1 12 7.60	3 14 32.3	101.96
8	23 41 28.87	4 37 40.7	96.78	8	1 14 6.02	3 24 43.9	101.92
9	23 43 23.16	4 27 59.3	97.02	9	1 16 4.61	3 34 55.3	101.87
10	23 45 17.47	4 18 16.4	97.26	10	1 18 3.37	3 45 6.3	101.81
11	23 47 11.79	4 8 32.1	97.50	11	1 20 2.30	3 55 17.0	101.75
12	23 49 6.13	3 58 46.4	97.73	12	1 22 1.41	4 5 27.3	101.68
13	23 51 0.50	3 48 59.4	97.94	13	1 24 0.70	4 15 37.2	101.61
14	23 52 54.90	3 39 11.1	98.16	14	1 26 0.18	4 25 46.6	101.53
15	23 54 49.32	3 29 21.5	98.38	15	1 27 59.84	4 35 55.5	101.44
16	23 56 43.78	3 19 30.6	98.58	16	1 29 59.69	4 46 3.9	101.34
17	23 58 38.28	3 9 38.6	98.77	17	1 31 59.74	4 56 11.6	101.23
18	0 0 32.82	2 59 45.4	98.97	18	1 33 59.99	5 6 18.6	101.12
19	0 2 27.40	2 49 51.0	99.16	19	1 36 0.44	5 16 25.0	101.00
20	0 4 22.03	2 39 55.5	99.33	20	1 38 1.09	5 26 30.6	100.87
21	0 6 16.71	2 29 59.0	99.50	21	1 40 1.95	5 36 35.4	100.73
22	0 8 11.44	2 20 1.5	99.67	22	1 42 3.02	5 46 39.4	100.59
23	0 10 6.22	2 10 2.9	99.85	23	1 44 4.31	5 56 42.5	100.43
24	0 12 1.07	S. 2 0 3.3	100.01	24	1 46 5.81	N. 6 6 44.6	100.27

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
MONDAY 13.				WEDNESDAY 15.			
0	^h 1 ^m 46 ^s 58.1	N. 6° 6' 44".6	100.27	0	^h 3 ^m 28 ^s 36.05	N. 13° 32' 30".7	81.63
1	1 48 7.54	6 16 45.7	100.10	1	3 30 51.91	13 40 38.5	80.97
2	1 50 9.49	6 26 45.8	99.93	2	3 33 8.11	13 48 42.3	80.30
3	1 52 11.67	6 36 44.9	99.75	3	3 35 24.67	13 56 42.1	79.63
4	1 54 14.09	6 46 42.8	99.55	4	3 37 41.58	14 4 37.9	78.95
5	1 56 16.74	6 56 39.5	99.34	5	3 39 58.84	14 12 29.5	78.25
6	1 58 19.62	7 6 34.9	99.13	6	3 42 16.46	14 20 16.9	77.53
7	2 0 22.75	7 16 29.1	98.92	7	3 44 34.43	14 27 59.9	76.81
8	2 2 26.13	7 26 22.0	98.70	8	3 46 52.76	14 35 38.6	76.08
9	2 4 29.75	7 36 13.5	98.46	9	3 49 11.45	14 43 12.9	75.33
10	2 6 33.62	7 46 3.5	98.22	10	3 51 30.50	14 50 42.6	74.57
11	2 8 37.75	7 55 52.1	97.97	11	3 53 49.90	14 58 7.8	73.81
12	2 10 42.13	8 5 39.1	97.70	12	3 56 9.67	15 5 28.3	73.03
13	2 12 46.77	8 15 24.5	97.43	13	3 58 29.80	15 12 44.1	72.23
14	2 14 51.68	8 25 8.3	97.15	14	4 0 50.28	15 19 55.0	71.41
15	2 16 56.86	8 34 50.3	96.86	15	4 3 11.12	15 27 1.0	70.59
16	2 19 2.31	8 44 30.6	96.56	16	4 5 32.33	15 34 2.1	69.76
17	2 21 8.03	8 54 9.0	96.25	17	4 7 53.89	15 40 58.1	68.91
18	2 23 14.03	9 3 45.6	95.94	18	4 10 15.81	15 47 49.0	68.06
19	2 25 20.30	9 13 20.3	95.61	19	4 12 38.09	15 54 34.8	67.19
20	2 27 26.86	9 22 52.9	95.27	20	4 15 0.73	16 1 15.3	66.30
21	2 29 33.71	9 32 23.5	94.93	21	4 17 23.72	16 7 50.4	65.40
22	2 31 40.84	9 41 52.0	94.58	22	4 19 47.07	16 14 20.1	64.50
23	2 33 48.27	N. 9 51 18.4	94.21	23	4 22 10.78	N. 16 20 44.4	63.58
TUESDAY 14.				THURSDAY 16.			
0	2 35 55.98	N. 10 0 42.5	93.83	0	4 24 34.84	N. 16 27 3.1	62.65
1	2 38 3.99	10 10 4.3	93.44	1	4 26 59.26	16 33 16.2	61.70
2	2 40 12.31	10 19 23.8	93.04	2	4 29 24.03	16 39 23.5	60.74
3	2 42 20.93	10 28 40.8	92.63	3	4 31 49.15	16 45 25.1	59.77
4	2 44 29.85	10 37 55.4	92.22	4	4 34 14.63	16 51 20.8	58.78
5	2 46 39.08	10 47 7.5	91.80	5	4 36 40.45	16 57 10.5	57.79
6	2 48 48.62	10 56 17.0	91.36	6	4 39 6.62	17 2 54.3	56.79
7	2 50 58.47	11 5 23.8	90.91	7	4 41 33.13	17 8 32.0	55.78
8	2 53 8.64	11 14 27.9	90.45	8	4 43 59.99	17 14 3.6	54.74
9	2 55 19.12	11 23 29.2	89.98	9	4 46 27.19	17 19 28.9	53.70
10	2 57 29.93	11 32 27.7	89.50	10	4 48 54.73	17 24 48.0	52.65
11	2 59 41.06	11 41 23.3	89.02	11	4 51 22.61	17 30 0.7	51.58
12	3 1 52.51	11 50 15.9	88.52	12	4 53 50.81	17 35 6.9	50.49
13	3 4 4.29	11 59 5.5	88.00	13	4 56 19.35	17 40 6.6	49.40
14	3 6 16.40	12 7 51.9	87.47	14	4 58 48.22	17 44 59.7	48.30
15	3 8 28.84	12 16 35.2	86.94	15	5 1 17.42	17 49 46.2	47.19
16	3 10 41.62	12 25 15.2	86.39	16	5 3 46.95	17 54 26.0	46.07
17	3 12 54.73	12 33 51.9	85.84	17	5 6 16.79	17 58 59.0	44.93
18	3 15 8.18	12 42 25.3	85.28	18	5 8 46.95	18 3 25.1	43.78
19	3 17 21.97	12 50 55.2	84.69	19	5 11 17.42	18 7 44.3	42.62
20	3 19 36.10	12 59 21.6	84.10	20	5 13 48.20	18 11 56.5	41.45
21	3 21 50.57	13 7 44.4	83.50	21	5 16 19.29	18 16 1.7	40.28
22	3 24 5.38	13 16 3.6	82.88	22	5 18 50.68	18 19 59.8	39.08
23	3 26 20.54	13 24 19.0	82.26	23	5 21 22.37	18 23 50.7	37.88
24	3 28 36.05	N. 13 32 30.7	81.63	24	5 23 54.35	N. 18 27 34.3	36.66

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 17.				SUNDAY 19.			
0	^h 5 ^m 23 ^s 54.35	N. 18 27 34.3	36.66	0	^h 7 ^m 29 ^s 28.44	N. 18 49 14.0	29.31
1	5 26 26.63	18 31 10.6	35.43	1	7 32 7.69	18 46 13.9	30.73
2	5 28 59.19	18 34 39.5	34.20	2	7 34 46.92	18 43 5.3	32.14
3	5 31 32.03	18 38 1.0	32.96	3	7 37 26.12	18 39 48.2	33.55
4	5 34 5.15	18 41 15.0	31.70	4	7 40 5.28	18 36 22.7	34.95
5	5 36 38.55	18 44 21.4	30.44	5	7 42 44.39	18 32 48.8	36.35
6	5 39 12.21	18 47 20.3	29.17	6	7 45 23.44	18 29 6.5	37.74
7	5 41 46.13	18 50 11.5	27.88	7	7 48 2.43	18 25 15.9	39.13
8	5 44 20.31	18 52 54.9	26.59	8	7 50 41.36	18 21 16.9	40.52
9	5 46 54.75	18 55 30.6	25.30	9	7 53 20.21	18 17 9.6	41.90
10	5 49 29.43	18 57 58.5	24.00	10	7 55 58.98	18 12 54.1	43.27
11	5 52 4.35	19 0 18.6	22.68	11	7 58 37.66	18 8 30.3	44.64
12	5 54 39.51	19 2 30.7	21.36	12	8 1 16.25	18 3 58.4	46.00
13	5 57 14.90	19 4 34.9	20.02	13	8 3 54.74	17 59 18.3	47.36
14	5 59 50.52	19 6 31.0	18.68	14	8 6 33.12	17 54 30.1	48.70
15	6 2 26.35	19 8 19.1	17.35	15	8 9 11.38	17 49 33.9	50.03
16	6 5 2.39	19 9 59.2	16.00	16	8 11 49.52	17 44 29.7	51.36
17	6 7 38.64	19 11 31.1	14.63	17	8 14 27.54	17 39 17.6	52.68
18	6 10 15.09	19 12 54.7	13.26	18	8 17 5.42	17 33 57.5	54.00
19	6 12 51.74	19 14 10.2	11.89	19	8 19 43.16	17 28 29.6	55.30
20	6 15 28.58	19 15 17.4	10.52	20	8 22 20.76	17 22 53.9	56.59
21	6 18 5.59	19 16 16.4	9.13	21	8 24 58.21	17 17 10.5	57.87
22	6 20 42.78	19 17 7.0	7.73	22	8 27 35.51	17 11 19.4	59.15
23	6 23 20.14	N. 19 17 49.2	6.34	23	8 30 12.64	N. 17 5 20.7	60.41
SATURDAY 18.				MONDAY 20.			
0	6 25 57.67	N. 19 18 23.1	4.95	0	8 32 49.61	N. 16 59 14.5	61.66
1	6 28 35.35	19 18 48.6	3.54	1	8 35 26.40	16 53 0.8	62.91
2	6 31 13.18	19 19 5.6	2.13	2	8 38 3.02	16 46 39.6	64.15
3	6 33 51.14	19 19 14.1	0.72	3	8 40 39.45	16 40 11.0	65.37
4	6 36 29.24	19 19 14.2	0.70	4	8 43 15.69	16 33 35.2	66.57
5	6 39 7.47	19 19 5.7	2.12	5	8 45 51.74	16 26 52.2	67.77
6	6 41 45.82	19 18 48.7	3.54	6	8 48 27.60	16 20 2.0	68.96
7	6 44 24.28	19 18 23.2	4.97	7	8 51 3.25	16 13 4.7	70.12
8	6 47 2.85	19 17 49.1	6.40	8	8 53 38.70	16 6 0.5	71.28
9	6 49 41.52	19 17 6.4	7.83	9	8 56 13.93	15 58 49.3	72.44
10	6 52 20.28	19 16 15.2	9.26	10	8 58 48.95	15 51 31.2	73.58
11	6 54 59.13	19 15 15.3	10.70	11	9 1 23.76	15 44 6.3	74.70
12	6 57 38.05	19 14 6.8	12.13	12	9 3 58.34	15 36 34.8	75.81
13	7 0 17.04	19 12 49.7	13.57	13	9 6 32.69	15 28 56.6	76.91
14	7 2 56.09	19 11 24.0	15.00	14	9 9 6.81	15 21 11.9	77.98
15	7 5 35.20	19 9 49.7	16.43	15	9 11 40.70	15 13 20.8	79.05
16	7 8 14.36	19 8 6.8	17.87	16	9 14 14.34	15 5 23.3	80.11
17	7 10 53.56	19 6 15.2	19.31	17	9 16 47.75	14 57 19.5	81.16
18	7 13 32.79	19 4 15.1	20.74	18	9 19 20.92	14 49 9.4	82.19
19	7 16 12.04	19 2 6.3	22.17	19	9 21 53.83	14 40 53.2	83.20
20	7 18 51.31	18 59 49.0	23.60	20	9 24 26.50	14 32 31.0	84.20
21	7 21 30.59	18 57 23.1	25.03	21	9 26 58.91	14 24 2.8	85.18
22	7 24 9.88	18 54 48.6	26.46	22	9 29 31.07	14 15 28.8	86.15
23	7 26 49.17	18 52 5.6	27.88	23	9 32 2.97	14 6 49.0	87.12
24	7 29 28.44	N. 18 49 14.0	29.31	24	9 34 34.61	N. 13 58 3.4	88.07

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 21.				THURSDAY 23.			
0	h m s 9 34 34.61	N. 13 58 3.4	88.07	0	h m s 11 30 29.85	N. 5 35 55.0	115.29
1	9 37 5.99	13 49 12.2	88.99	1	11 32 48.19	5 24 22.6	115.49
2	9 39 37.10	13 40 15.5	89.90	2	11 35 6.28	5 12 49.1	115.68
3	9 42 7.94	13 31 13.4	90.80	3	11 37 24.14	5 1 14.5	115.85
4	9 44 38.52	13 22 5.9	91.68	4	11 39 41.75	4 49 38.9	116.01
5	9 47 8.82	13 12 53.2	92.55	5	11 41 59.13	4 38 2.4	116.16
6	9 49 38.86	13 3 35.3	93.40	6	11 44 16.28	4 26 25.0	116.29
7	9 52 8.62	12 54 12.4	94.23	7	11 46 33.19	4 14 46.9	116.41
8	9 54 38.10	12 44 44.5	95.06	8	11 48 49.87	4 3 8.1	116.52
9	9 57 7.31	12 35 11.7	95.88	9	11 51 6.33	3 51 28.7	116.61
10	9 59 36.25	12 25 34.0	96.67	10	11 53 22.57	3 39 48.8	116.69
11	10 2 4.90	12 15 51.7	97.43	11	11 55 38.58	3 28 8.4	116.76
12	10 4 33.27	12 6 4.8	98.19	12	11 57 54.37	3 16 27.6	116.82
13	10 7 1.36	11 56 13.4	98.93	13	12 0 9.95	3 4 46.6	116.86
14	10 9 29.18	11 46 17.6	99.67	14	12 2 25.31	2 53 5.3	116.89
15	10 11 56.71	11 36 17.4	100.38	15	12 4 40.47	2 41 23.9	116.91
16	10 14 23.96	11 26 13.0	101.08	16	12 6 55.42	2 29 42.4	116.92
17	10 16 50.93	11 16 4.5	101.75	17	12 9 10.16	2 18 0.9	116.91
18	10 19 17.62	11 5 52.0	102.41	18	12 11 24.70	2 6 19.5	116.89
19	10 21 44.02	10 55 35.5	103.06	19	12 13 39.04	1 54 38.2	116.86
20	10 24 10.14	10 45 15.2	103.70	20	12 15 53.18	1 42 57.2	116.82
21	10 26 35.98	10 34 51.1	104.33	21	12 18 7.13	1 31 16.4	116.76
22	10 29 1.54	10 24 23.3	104.93	22	12 20 20.89	1 19 36.0	116.70
23	10 31 26.81	N. 10 13 51.9	105.52	23	12 22 34.46	N. 1 7 56.0	116.62
WEDNESDAY 22.				FRIDAY 24.			
0	10 33 51.81	N. 10 3 17.0	106.09	0	12 24 47.85	N. 0 56 16.5	116.53
1	10 36 16.52	9 52 38.8	106.64	1	12 27 1.06	0 44 37.6	116.43
2	10 38 40.96	9 41 57.3	107.19	2	12 29 14.08	0 32 59.3	116.32
3	10 41 5.11	9 31 12.5	107.72	3	12 31 26.93	0 21 21.7	116.20
4	10 43 28.99	9 20 24.7	108.22	4	12 33 39.60	N. 0 9 44.9	116.06
5	10 45 52.58	9 9 33.9	108.71	5	12 35 52.11	S. 0 1 51.0	115.92
6	10 48 15.90	8 58 40.2	109.19	6	12 38 4.44	0 13 26.1	115.77
7	10 50 38.95	8 47 43.6	109.67	7	12 40 16.61	0 25 0.2	115.60
8	10 53 1.72	8 36 44.2	110.12	8	12 42 28.62	0 36 33.3	115.42
9	10 55 24.21	8 25 42.2	110.55	9	12 44 40.47	0 48 5.3	115.24
10	10 57 46.44	8 14 37.6	110.97	10	12 46 52.17	0 59 36.2	115.04
11	11 0 8.39	8 3 30.6	111.37	11	12 49 3.71	1 11 5.8	114.83
12	11 2 30.07	7 52 21.2	111.76	12	12 51 15.09	1 22 34.1	114.61
13	11 4 51.48	7 41 9.5	112.13	13	12 53 26.33	1 34 1.1	114.38
14	11 7 12.63	7 29 55.6	112.48	14	12 55 37.43	1 45 26.7	114.15
15	11 9 33.52	7 18 39.7	112.82	15	12 57 48.39	1 56 50.9	113.90
16	11 11 54.14	7 7 21.7	113.16	16	12 59 59.21	2 8 13.5	113.64
17	11 14 14.50	6 56 1.7	113.48	17	13 2 9.89	2 19 34.6	113.38
18	11 16 34.60	6 44 39.9	113.78	18	13 4 20.44	2 30 54.1	113.10
19	11 18 54.44	6 33 16.3	114.06	19	13 6 30.86	2 42 11.8	112.81
20	11 21 14.02	6 21 51.1	114.33	20	13 8 41.15	2 53 27.8	112.52
21	11 23 33.35	6 10 24.3	114.60	21	13 10 51.32	3 4 42.0	112.22
22	11 25 52.43	5 58 55.9	114.85	22	13 13 1.37	3 15 54.4	111.90
23	11 28 11.26	5 47 26.1	115.08	23	13 15 11.30	3 27 4.8	111.57
24	11 30 29.85	N. 5 35 55.0	115.29	24	13 17 21.11	S. 3 38 13.2	111.23

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 25.				MONDAY 27.			
0	h m s	S. ° ' "	" "	0	h m s	S. ° ' "	" "
1	13 17 21.11	3 38 13.2	111.23	1	14 59 46.94	11 38 49.8	86.32
2	13 19 30.81	3 49 19.6	110.90	2	15 1 54.13	11 47 25.7	85.65
3	13 21 40.40	4 0 24.0	110.55	3	15 4 1.31	11 55 57.6	84.97
4	13 23 49.88	4 11 26.2	110.19	4	15 6 8.50	12 4 25.3	84.28
5	13 25 59.26	4 22 26.3	109.83	5	15 8 15.68	12 12 48.9	83.58
6	13 28 8.54	4 33 24.1	109.45	6	15 10 22.86	12 21 8.3	82.88
7	13 30 17.72	4 44 19.7	109.06	7	15 12 30.04	12 29 23.5	82.18
8	13 32 26.80	4 55 12.9	108.67	8	15 14 37.23	12 37 34.5	81.48
9	13 34 35.79	5 6 3.7	108.27	9	15 16 44.42	12 45 41.3	80.77
10	13 36 44.69	5 16 52.1	107.86	10	15 18 51.62	12 53 43.7	80.04
11	13 38 53.50	5 27 38.0	107.44	11	15 20 58.82	13 1 41.8	79.31
12	13 41 2.22	5 38 21.4	107.02	12	15 23 6.03	13 9 35.5	78.59
13	13 43 10.86	5 49 2.2	106.58	13	15 25 13.24	13 17 24.9	77.87
14	13 45 19.42	5 59 40.4	106.14	14	15 27 20.47	13 25 9.9	77.13
15	13 47 27.91	6 10 15.9	105.69	15	15 29 27.71	13 32 50.4	76.38
16	13 49 36.32	6 20 48.7	105.24	16	15 31 34.96	13 40 26.5	75.63
17	13 51 44.65	6 31 18.8	104.78	17	15 33 42.22	13 47 58.0	74.88
18	13 53 52.92	6 41 46.0	104.30	18	15 35 49.50	13 55 25.1	74.13
19	13 56 1.12	6 52 10.4	103.82	19	15 37 56.79	14 2 47.6	73.37
20	13 58 9.25	7 2 31.9	103.34	20	15 40 4.10	14 10 5.5	72.60
21	14 0 17.33	7 12 50.5	102.85	21	15 42 11.42	14 17 18.8	71.83
22	14 2 25.34	7 23 6.1	102.34	22	15 44 18.76	14 24 27.5	71.06
23	14 4 33.29	7 33 18.6	101.83	23	15 46 26.11	14 31 31.6	70.28
24	14 6 41.19	S. 7 43 28.0	101.32	24	15 48 33.48	S. 14 38 30.9	69.49
SUNDAY 26.				TUESDAY 28.			
0	h m s	S. ° ' "	" "	0	h m s	S. ° ' "	" "
1	14 8 49.03	8 7 53 34.4	100.80	1	15 50 40.87	14 45 25.5	68.71
2	14 10 56.83	8 3 37.6	100.26	2	15 52 48.28	14 52 15.4	67.92
3	14 13 4.57	8 13 37.6	99.72	3	15 54 55.71	14 59 0.6	67.13
4	14 15 12.27	8 23 34.3	99.18	4	15 57 3.15	15 5 40.9	66.33
5	14 17 19.93	8 33 27.8	98.64	5	15 59 10.62	15 12 16.5	65.53
6	14 19 27.55	8 43 18.0	98.08	6	16 1 18.11	15 18 47.2	64.72
7	14 21 35.12	8 53 4.8	97.52	7	16 3 25.62	15 25 13.1	63.91
8	14 23 42.66	9 2 48.2	96.95	8	16 5 33.14	15 31 34.1	63.09
9	14 25 50.16	9 12 28.2	96.37	9	16 7 40.69	15 37 50.2	62.27
10	14 27 57.63	9 22 4.6	95.78	10	16 9 48.26	15 44 1.4	61.45
11	14 30 5.07	9 31 37.6	95.20	11	16 11 55.85	15 50 7.6	60.63
12	14 32 12.47	9 41 7.0	94.61	12	16 14 3.46	15 56 8.9	59.80
13	14 34 19.85	9 50 32.9	94.01	13	16 16 11.09	16 2 5.2	58.97
14	14 36 27.21	9 59 55.1	93.40	14	16 18 18.75	16 7 56.5	58.13
15	14 38 34.54	10 9 13.7	92.78	15	16 20 26.42	16 13 42.8	57.29
16	14 40 41.85	10 18 28.5	92.16	16	16 22 34.12	16 19 24.0	56.45
17	14 42 49.14	10 27 39.6	91.54	17	16 24 41.84	16 25 0.2	55.61
18	14 44 56.41	10 36 47.0	90.91	18	16 26 49.57	16 30 31.3	54.75
19	14 47 3.66	10 45 50.5	90.27	19	16 28 57.33	16 35 57.2	53.90
20	14 49 10.90	10 54 50.2	89.63	20	16 31 5.11	16 41 18.1	53.05
21	14 51 18.13	11 3 46.0	88.98	21	16 33 12.91	16 46 33.8	52.19
22	14 53 25.34	11 12 37.9	88.32	22	16 35 20.74	16 51 44.4	51.33
23	14 55 32.55	11 21 25.9	87.66	23	16 37 28.58	16 56 49.8	50.47
24	14 57 39.75	11 30 9.9	86.99	24	16 39 36.44	17 1 50.0	49.60
25	14 59 46.94	S. 11 38 49.8	86.32	25	16 41 44.32	S. 17 6 45.0	48.73

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
WEDNESDAY 29.				FRIDAY 31.			
0	16 ^h 41 ^m 44 ^s 32	S. 17° 6' 45" 0	48' 73	0	18 ^h 24 ^m 7 ^s 37	S. 19° 16' 46" 4	5' 02
1	16 43 52 22	17 11 34 8	47' 86	1	18 26 14 95	19 17 13 7	4' 09
2	16 46 0 13	17 16 19 4	46' 99	2	18 28 22 49	19 17 35 5	3' 18
3	16 48 8 07	17 20 58 7	46' 11	3	18 30 29 98	19 17 51 8	2' 26
4	16 50 16 02	17 25 32 7	45' 23	4	18 32 37 43	19 18 2 6	1' 33
5	16 52 23 98	17 30 1 4	44' 35	5	18 34 44 83	19 18 7 8	0' 41
6	16 54 31 96	17 34 24 9	43' 47	6	18 36 52 19	19 18 7 5	0' 51
7	16 56 39 96	17 38 43 0	42' 58	7	18 38 59 49	19 18 1 7	1' 42
8	16 58 47 97	17 42 55 8	41' 68	8	18 41 6 75	19 17 50 5	2' 33
9	17 0 55 99	17 47 3 2	40' 79	9	18 43 13 95	19 17 33 7	3' 26
10	17 3 4 02	17 51 5 3	39' 90	10	18 45 21 10	19 17 11 4	4' 17
11	17 5 12 06	17 55 2 0	39' 00	11	18 47 28 19	19 16 43 7	5' 08
12	17 7 20 12	17 58 53 3	38' 10	12	18 49 35 23	19 16 10 4	6' 00
13	17 9 28 19	18 2 39 2	37' 21	13	18 51 42 21	19 15 31 7	6' 90
14	17 11 36 26	18 6 19 8	36' 31	14	18 53 49 12	19 14 47 6	7' 81
15	17 13 44 34	18 9 54 9	35' 40	15	18 55 55 98	19 13 58 0	8' 72
16	17 15 52 43	18 13 24 6	34' 49	16	18 58 2 77	19 13 3 0	9' 62
17	17 18 0 52	18 16 48 8	33' 58	17	19 0 9 49	19 12 2 5	10' 52
18	17 20 8 62	18 20 7 6	32' 67	18	19 2 16 14	19 10 56 7	11' 42
19	17 22 16 72	18 23 20 9	31' 77	19	19 4 22 73	19 9 45 4	12' 32
20	17 24 24 82	18 26 28 8	30' 86	20	19 6 29 25	19 8 28 8	13' 22
21	17 26 32 93	18 29 31 2	29' 94	21	19 8 35 69	19 7 6 8	14' 12
22	17 28 41 03	18 32 28 1	29' 02	22	19 10 42 06	19 5 39 4	15' 01
23	17 30 49 14	S. 18° 35' 19" 5	28' 11	23	19 12 48 36	S. 19° 4' 6" 7	15' 90
THURSDAY 30.				SATURDAY, AUG. 1.			
0	17 32 57 24	S. 18° 38' 5" 4	27' 19	0	19 14 54 58	S. 19° 2' 28" 6	16' 79
1	17 35 5 34	18 40 45 8	26' 28	PHASES OF THE MOON.			
2	17 37 13 43	18 43 20 7	25' 36				
3	17 39 21 52	18 45 50 1	24' 44				
4	17 41 29 60	18 48 14 0	23' 52				
5	17 43 37 66	18 50 32 3	22' 59				
6	17 45 45 72	18 52 45 1	21' 67				
7	17 47 53 77	18 54 52 3	20' 75				
8	17 50 1 81	18 56 54 1	19' 83				
9	17 52 9 83	18 58 50 3	18' 90				
10	17 54 17 83	19 0 40 9	17' 97				
11	17 56 25 82	19 2 26 0	17' 05				
12	17 58 33 79	19 4 5 5	16' 12	<div> <div>July 4</div> <div> <div>○ Full Moon</div> <div>- - 8 39 4</div> </div> </div>			
13	18 0 41 74	19 5 39 5	15' 20				
14	18 2 49 67	19 7 7 9	14' 27				
15	18 4 57 57	19 8 30 7	13' 34				
16	18 7 5 45	19 9 48 0	12' 42				
17	18 9 13 30	19 10 59 8	11' 50	<div> <div>July 7</div> <div> <div>☾ Apogee</div> <div>- - - - 5</div> </div> </div>			
18	18 11 21 12	19 12 6 0	10' 56				
19	18 13 28 92	19 13 6 6	9' 63				
20	18 15 36 68	19 14 1 6	8' 71				
21	18 17 44 40	19 14 51 1	7' 79				
22	18 19 52 09	19 15 35 1	6' 87	<div> <div>July 20</div> <div> <div>☾ Perigee</div> <div>- - - - 1</div> </div> </div>			
23	18 21 59 75	19 16 13 5	5' 95				
24	18 24 7 37	S. 19° 16' 46" 4	5' 02				

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
1	Regulus W.	93 36 20	2812	95 10 32	2820	96 44 34	2829	98 18 24	2837
	Spica W.	40 15 8	2872	41 48 3	2877	43 20 51	2883	44 53 32	2887
	α Aquilæ E.	59 58 12	3515	58 38 4	3546	57 18 31	3581	55 59 36	3618
	Fomalhaut E.	92 10 7	3099	90 41 56	3107	89 13 55	3115	87 46 4	3124
	α Pegasi E.	106 57 20	3153	105 30 14	3157	104 3 13	3160	102 36 16	3164
2	Spica W.	52 35 15	2916	54 7 13	2922	55 39 4	2928	57 10 48	2934
	α Aquilæ E.	49 35 44	3842	48 21 25	3898	47 8 3	3957	45 55 41	4023
	Fomalhaut E.	80 29 35	3172	79 2 52	3183	77 36 22	3194	76 10 5	3204
	α Pegasi E.	95 22 56	3191	93 56 36	3197	92 30 23	3203	91 4 18	3210
	Jupiter E.	118 27 30	2915	116 55 30	2922	115 23 39	2929	113 51 57	2936
3	Spica W.	64 47 34	2963	66 18 33	2969	67 49 25	2974	69 20 10	2981
	Saturn W.	26 49 50	2945	28 21 12	2950	29 52 28	2953	31 23 40	2957
	Fomalhaut E.	69 2 6	3267	67 37 16	3280	66 12 41	3294	64 48 23	3310
	α Pegasi E.	83 56 4	3249	82 30 53	3258	81 5 53	3268	79 41 4	3277
	Jupiter E.	106 15 37	2969	104 44 46	2976	103 14 3	2982	101 43 28	2989
4	Spica W.	76 52 9	3007	78 22 13	3013	79 52 10	3018	81 22 1	3023
	Saturn W.	38 58 16	2980	40 28 54	2985	41 59 26	2989	43 29 52	2993
	Antares W.	31 51 37	3199	33 17 47	3188	34 44 11	3178	36 10 46	3171
	Fomalhaut E.	57 51 32	3397	56 29 12	3417	55 7 14	3438	53 45 41	3461
	α Pegasi E.	72 39 49	3330	71 16 12	3342	69 52 49	3354	68 29 40	3367
	Jupiter E.	94 12 24	3017	92 42 32	3022	91 12 47	3028	89 43 9	3033
5	Spica W.	88 49 43	3047	90 18 58	3051	91 48 8	3056	93 17 12	3060
	Saturn W.	51 0 40	3015	52 30 34	3019	54 0 23	3023	55 30 7	3027
	Antares W.	43 25 31	3149	44 52 41	3147	46 19 54	3145	47 47 9	3143
	Fomalhaut E.	47 4 51	3601	45 46 18	3636	44 28 22	3673	43 11 6	3714
	α Pegasi E.	61 37 50	3441	60 16 20	3458	58 55 9	3477	57 34 19	3496
	Jupiter E.	82 16 30	3056	80 47 27	3061	79 18 30	3065	77 49 38	3069
6	Saturn W.	62 57 38	3044	64 26 56	3047	65 56 11	3050	67 25 22	3052
	Antares W.	55 3 40	3142	56 30 59	3142	57 58 18	3141	59 25 38	3142
	Fomalhaut E.	36 56 58	3987	35 45 6	4061	34 34 26	4143	33 25 6	4235
	α Pegasi E.	50 55 56	3612	49 37 35	3640	48 19 44	3672	47 2 27	3705
	Jupiter E.	70 26 28	3087	68 58 3	3090	67 29 41	3093	66 1 23	3096
	α Arietis E.	92 46 29	3198	91 20 17	3200	89 54 8	3204	88 28 3	3206
7	Saturn W.	74 50 37	3061	76 19 34	3063	77 48 29	3064	79 17 23	3065
	Antares W.	66 42 13	3142	68 9 32	3142	69 36 51	3141	71 4 11	3140
	Jupiter E.	58 40 34	3105	57 12 31	3107	55 44 30	3107	54 16 29	3109
	α Arietis E.	81 18 27	3220	79 52 41	3223	78 26 59	3225	77 1 20	3228
	Mars E.	109 48 20	3353	108 25 10	3354	107 2 1	3355	105 38 53	3355
8	Saturn W.	86 41 47	3064	88 10 40	3063	89 39 35	3062	91 8 31	3060
	Antares W.	78 21 4	3136	79 48 30	3134	81 15 58	3132	82 43 29	3130
	Jupiter E.	46 56 37	3109	45 28 38	3108	44 0 38	3107	42 32 37	3106
	α Arietis E.	69 53 49	3240	68 28 27	3243	67 3 9	3246	65 37 54	3248
	Mars E.	98 43 13	3353	97 20 3	3352	95 56 52	3351	94 33 39	3349
	SUN E.	140 16 36	3455	138 55 21	3454	137 34 5	3451	136 12 46	3447
9	Saturn W.	98 33 49	3048	100 3 3	3044	101 32 21	3040	103 1 44	3038
	α Aquilæ W.	47 23 33	4060	48 34 14	4011	49 45 43	3964	50 57 58	3928

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
1	Regulus W.	99 52 4	2845	101 25 34	2853	102 58 53	2860	104 32 3	2867
	Spica W.	46 26 7	2893	47 58 35	2898	49 30 56	2905	51 3 9	2910
	α Aquilæ E.	54 41 21	3556	53 23 47	3598	52 6 58	3743	50 50 56	3791
	Fomalhaut E.	86 18 24	3133	84 50 55	3142	83 23 36	3152	81 56 30	3162
	α Pegasi E.	101 9 24	3169	99 42 38	3173	98 15 57	3179	96 49 23	3185
2	Spica W.	58 42 24	2939	60 13 53	2946	61 45 14	2951	63 16 28	2957
	α Aquilæ E.	44 44 24	4093	43 34 15	4170	42 25 20	4254	41 17 45	4345
	Fomalhaut E.	74 44 1	3215	73 18 10	3228	71 52 34	3241	70 27 13	3253
	α Pegasi E.	89 38 21	3218	88 12 33	3225	86 46 54	3233	85 21 24	3241
	Jupiter E.	112 20 24	2943	110 49 0	2950	109 17 44	2957	107 46 37	2962
3	Spica W.	70 50 47	2985	72 21 18	2991	73 51 42	2997	75 21 59	3002
	Saturn W.	32 54 46	2962	34 25 47	2966	35 56 42	2970	37 27 32	2975
	Fomalhaut E.	63 24 23	3326	62 0 41	3342	60 37 18	3359	59 14 15	3377
	α Pegasi E.	78 16 25	3287	76 51 58	3297	75 27 43	3307	74 3 40	3318
	Jupiter E.	100 13 1	2994	98 42 40	3001	97 12 28	3006	95 42 22	3012
4	Spica W.	82 51 45	3028	84 21 23	3032	85 50 56	3038	87 20 22	3042
	Saturn W.	45 0 13	2998	46 30 28	3003	48 0 37	3007	49 30 42	3012
	Antares W.	37 37 30	3164	39 4 22	3159	40 31 20	3155	41 58 23	3151
	Fomalhaut E.	52 24 33	3486	51 3 53	3511	49 43 41	3539	48 24 0	3568
	α Pegasi E.	67 6 46	3380	65 44 7	3394	64 21 44	3409	62 59 38	3425
	Jupiter E.	88 13 37	3038	86 44 11	3043	85 14 51	3048	83 45 37	3053
5	Spica W.	94 46 11	3064	96 15 5	3067	97 43 55	3071	99 12 40	3075
	Saturn W.	56 59 46	3031	58 29 20	3035	59 58 50	3038	61 28 16	3041
	Antares W.	49 14 26	3143	50 41 43	3142	52 9 2	3143	53 36 20	3141
	Fomalhaut E.	41 54 34	3759	40 38 49	3808	39 23 55	3862	38 9 57	3921
	α Pegasi E.	56 13 50	3516	54 53 44	3538	53 34 2	3561	52 14 45	3586
	Jupiter E.	76 20 51	3073	74 52 9	3077	73 23 31	3080	71 54 57	3084
6	Saturn W.	68 54 31	3055	70 23 36	3056	71 52 39	3059	73 21 39	3060
	Antares W.	60 52 57	3142	62 20 16	3142	63 47 35	3142	65 14 54	3142
	Fomalhaut E.	32 17 13	4339	31 10 56	4457	30 6 26	4592	29 3 54	4745
	α Pegasi E.	45 45 45	3741	44 29 41	3780	43 14 18	3822	41 59 39	3869
	Jupiter E.	64 33 8	3098	63 4 56	3100	61 36 46	3102	60 8 39	3104
	α Arietis E.	87 2 1	3209	85 36 3	3211	84 10 7	3214	82 44 15	3218
7	Saturn W.	80 46 16	3065	82 15 9	3065	83 44 1	3065	85 12 54	3065
	Antares W.	72 31 32	3140	73 58 53	3139	75 26 15	3138	76 53 39	3137
	Jupiter E.	52 48 30	3110	51 20 32	3109	49 52 33	3109	48 24 35	3109
	α Arietis E.	75 35 44	3230	74 10 10	3233	72 44 40	3236	71 19 13	3238
	Mars E.	104 15 45	3355	102 52 37	3355	101 29 29	3355	100 6 21	3355
8	Saturn W.	92 37 29	3058	94 6 30	3056	95 35 33	3054	97 4 39	3051
	Antares W.	84 11 2	3128	85 38 38	3125	87 6 17	3123	88 33 59	3121
	Jupiter E.	41 4 35	3104	39 36 30	3103	38 8 24	3100	36 40 14	3098
	α Arietis E.	64 12 41	3251	62 47 32	3253	61 22 26	3256	59 57 23	3259
	Mars E.	93 10 24	3347	91 47 7	3344	90 23 47	3341	89 0 23	3338
	Sun E.	134 51 23	3445	133 29 58	3441	132 8 28	3438	130 46 55	3434
9	Saturn W.	104 31 12	3031	106 0 46	3026	107 30 26	3021	109 0 13	3015
	α Aquilæ W.	52 10 55	3882	53 24 33	3844	54 38 50	3810	55 53 42	3776

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
9	Jupiter E.	35 12 2	3095	33 43 46	3093	32 15 28	3089	30 47 5	3086
	α Arietis E.	58 32 24	3262	57 7 28	3266	55 42 37	3270	54 17 50	3273
	Mars E.	87 36 56	3334	86 13 24	3331	84 49 48	3326	83 26 7	3322
	SUN E.	129 25 17	3434	128 3 34	3426	126 41 47	3420	125 19 53	3415
10	α Aquilæ W.	57 9 9	3745	58 25 9	3714	59 41 41	3686	60 58 43	3658
	α Arietis E.	47 15 17	3302	45 51 8	3311	44 27 9	3321	43 3 22	3332
	Mars E.	76 26 13	3293	75 1 53	3286	73 37 25	3278	72 12 48	3271
	Aldebaran E.	77 52 57	3014	76 23 2	3007	74 52 58	3001	73 22 46	2993
	SUN E.	118 28 49	3383	117 6 13	3376	115 43 29	3367	114 20 35	3359
11	α Aquilæ W.	67 30 53	3537	68 50 36	3515	70 10 44	3493	71 31 16	3472
	Fomalhaut W.	34 17 24	3972	35 29 31	3889	36 43 2	3812	37 57 52	3743
	α Arietis E.	36 8 18	3419	34 46 23	3447	33 25 0	3480	32 4 13	3518
	Mars E.	65 7 18	3226	63 41 39	3216	62 15 49	3204	60 49 45	3194
	Aldebaran E.	65 49 13	2949	64 17 57	2939	62 46 27	2929	61 14 45	2918
	SUN E.	107 23 31	3311	105 59 32	3299	104 35 19	3288	103 10 54	3276
12	α Aquilæ W.	78 19 34	3375	79 42 19	3357	81 5 25	3339	82 28 51	3321
	Fomalhaut W.	44 28 36	3467	45 49 37	3423	47 11 28	3380	48 34 7	3340
	α Pegasi W.	32 9 51	4203	33 18 14	4081	34 28 34	3972	35 40 41	3874
	Aldebaran E.	53 32 36	2858	51 59 23	2845	50 25 53	2832	48 52 6	2818
	Mars E.	53 36 5	3134	52 8 37	3121	50 40 53	3107	49 12 52	3095
	SUN E.	96 5 7	3211	94 39 10	3197	93 12 57	3181	91 46 25	3166
13	Fomalhaut W.	55 38 13	3167	57 5 2	3136	58 32 28	3105	60 0 31	3077
	α Pegasi W.	42 3 52	3496	43 24 21	3437	44 45 56	3381	46 8 34	3329
	Aldebaran E.	40 58 29	2743	39 22 46	2727	37 46 42	2711	36 10 16	2694
	Mars E.	41 48 39	3023	40 18 55	3009	38 48 54	2994	37 18 34	2980
	SUN E.	84 29 6	3085	83 0 38	3068	81 31 49	3051	80 2 39	3032
14	Fomalhaut W.	67 29 25	2942	69 0 51	2916	70 32 50	2892	72 5 19	2867
	α Pegasi W.	53 15 46	3109	54 43 44	3071	56 12 29	3035	57 41 59	3000
	Jupiter W.	26 23 28	2647	28 1 19	2628	29 39 36	2607	31 18 21	2588
	Mars E.	29 42 29	2912	28 10 26	2901	26 38 8	2891	25 5 37	2882
	SUN E.	72 31 8	2939	70 59 39	2920	69 27 46	2901	67 55 28	2882
15	Fomalhaut W.	79 55 23	2753	81 30 52	2733	83 6 48	2712	84 43 12	2692
	α Pegasi W.	65 19 52	2844	66 53 23	2815	68 27 31	2788	70 2 15	2762
	Jupiter W.	39 38 52	2489	41 20 20	2470	43 2 15	2451	44 44 37	2431
	α Arietis W.	23 1 2	3597	24 19 40	3436	25 41 16	3300	27 5 28	3184
	SUN E.	60 7 40	2782	58 32 49	2763	56 57 32	2743	55 21 49	2723
16	Fomalhaut W.	92 51 44	2599	94 30 40	2583	96 9 58	2568	97 49 37	2552
	α Pegasi W.	78 4 15	2642	79 42 13	2621	81 20 40	2600	82 59 35	2580
	Jupiter W.	53 23 18	2337	55 8 23	2319	56 53 55	2302	58 39 52	2283
	α Arietis W.	34 36 6	2786	36 10 52	2730	37 46 52	2679	39 24 0	2633
	SUN E.	47 16 41	2626	45 38 22	2608	43 59 38	2589	42 20 28	2572
17	Jupiter W.	67 36 3	2200	69 24 30	2184	71 13 21	2170	73 2 34	2155
	α Arietis W.	47 43 55	2449	49 26 21	2419	51 9 28	2392	52 53 14	2366
	Aldebaran W.	13 26 11	2181	15 15 8	2166	17 4 27	2150	18 54 10	2136
	SUN E.	33 58 40	2488	32 17 10	2473	30 35 19	2460	28 53 9	2446

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^b .	P.L. of diff.	XVIII ^b .	P.L. of diff.	XXI ^b .	P.L. of diff.
9	Jupiter E.	29 18 38	3083	27 50 8	3079	26 21 33	3075	24 52 53	3072
	α Arietis E.	52 53 7	3278	51 28 30	3283	50 3 59	3288	48 39 34	3295
	Mars E.	82 2 21	3317	80 38 29	3312	79 14 31	3306	77 50 26	3299
	SUN E.	123 57 54	3410	122 35 49	3403	121 13 36	3397	119 51 16	3391
10	α Aquilæ W.	62 16 15	3633	63 34 14	3607	64 52 41	3583	66 11 34	3559
	α Arietis E.	41 39 47	3344	40 16 26	3359	38 53 23	3376	37 30 39	3396
	Mars E.	70 48 2	3263	69 23 7	3254	67 58 2	3245	66 32 46	3235
	Aldebaran E.	71 52 25	2985	70 21 53	2977	68 51 11	2968	67 20 18	2958
	SUN E.	112 57 32	3350	111 34 18	3341	110 10 54	3331	108 47 18	3321
11	α Aquilæ W.	72 52 11	3452	74 13 29	3432	75 35 9	3413	76 57 11	3394
	Fomalhaut W.	39 13 54	3678	40 31 4	3621	41 49 16	3566	43 8 28	3515
	α Arietis E.	30 44 8	3564	29 24 55	3612	28 6 40	3683	26 49 35	3762
	Mars E.	59 23 29	3183	57 56 59	3172	56 30 16	3159	55 3 18	3147
	Aldebaran E.	59 42 49	2906	58 10 38	2895	56 38 13	2883	55 5 33	2870
	SUN E.	101 46 14	3264	100 21 21	3251	98 56 12	3238	97 30 48	3224
12	α Aquilæ W.	83 52 38	3304	85 16 45	3288	86 41 11	3271	88 5 57	3255
	Fomalhaut W.	49 57 32	3303	51 21 40	3267	52 46 30	3232	54 12 2	3198
	α Pegasi W.	36 54 27	3785	38 9 45	3703	39 26 29	3628	40 44 33	3559
	Aldebaran E.	47 18 1	2803	45 43 37	2789	44 8 54	2774	42 33 52	2758
	Mars E.	47 44 36	3081	46 16 3	3066	44 47 12	3052	43 18 4	3038
	SUN E.	90 19 35	3151	88 52 27	3135	87 25 0	3119	85 57 13	3102
13	Fomalhaut W.	61 29 9	3048	62 58 22	3020	64 28 10	2993	65 58 31	2967
	α Pegasi W.	47 32 12	3281	48 56 46	3234	50 22 15	3190	51 48 36	3149
	Aldebaran E.	34 33 28	2677	32 56 18	2660	31 18 44	2643	29 40 48	2626
	Mars E.	35 47 56	2966	34 17 1	2951	32 45 47	2938	31 14 17	2924
	SUN E.	78 33 6	3014	77 3 11	2996	75 32 54	2977	74 2 13	2958
14	Fomalhaut W.	73 38 20	2844	75 11 51	2821	76 45 52	2798	78 20 23	2776
	α Pegasi W.	59 12 12	2966	60 43 7	2934	62 14 42	2903	63 46 58	2873
	Jupiter W.	32 57 33	2568	34 37 12	2548	36 17 18	2529	37 57 51	2509
	Mars E.	23 32 55	2875	22 0 4	2872	20 27 9	2873	18 54 15	2879
	SUN E.	66 22 46	2862	64 49 38	2842	63 16 4	2822	61 42 5	2802
15	Fomalhaut W.	86 20 3	2672	87 57 21	2653	89 35 4	2635	91 13 12	2617
	α Pegasi W.	71 37 33	2736	73 13 25	2711	74 49 50	2687	76 26 47	2664
	Jupiter W.	46 27 27	2412	48 10 44	2393	49 54 28	2374	51 38 40	2356
	α Arietis W.	28 31 56	3083	30 0 26	2995	31 30 45	2918	33 2 41	2849
	SUN E.	53 45 40	2703	52 9 4	2684	50 32 2	2665	48 54 35	2645
16	Fomalhaut W.	99 29 38	2539	101 9 57	2525	102 50 35	2514	104 31 29	2502
	α Pegasi W.	84 38 58	2561	86 18 46	2544	87 58 58	2526	89 39 35	2510
	Jupiter W.	60 26 16	2266	62 13 5	2249	64 0 20	2233	65 47 59	2216
	α Arietis W.	41 2 10	2590	42 41 18	2551	44 21 21	2514	46 2 15	2481
	SUN E.	40 40 54	2554	39 0 55	2537	37 20 33	2520	35 39 48	2504
17	Jupiter W.	74 52 10	2141	76 42 6	2128	78 32 23	2115	80 23 0	2103
	α Arietis W.	54 37 38	2342	56 22 36	2320	58 8 7	2299	59 54 8	2279
	Aldebaran W.	20 44 14	2122	22 34 40	2109	24 25 26	2096	26 16 31	2084
	SUN E.	27 10 39	2433	25 27 52	2422	23 44 49	2412	22 1 32	2404

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
21	SUN W.	22 29 11	2319	24 14 42	2323	26 0 8	2328	27 45 26	2334
	Saturn E.	97 46 32	2010	95 53 14	2018	94 0 8	2026	92 7 14	2034
	Antares E.	106 26 5	2077	104 34 31	2083	102 43 5	2089	100 51 49	2097
22	SUN W.	36 29 12	2380	38 13 16	2392	39 57 2	2403	41 40 32	2416
	Saturn E.	82 46 12	2084	80 54 48	2095	79 3 41	2107	77 12 53	2120
	Antares E.	91 38 40	2143	89 48 47	2156	87 59 13	2167	86 9 56	2181
23	SUN W.	50 13 12	2488	51 54 42	2503	53 35 51	2520	55 16 37	2535
	Saturn E.	68 3 57	2190	66 15 15	2205	64 26 55	2221	62 38 58	2237
	Antares E.	77 8 39	2253	75 21 30	2269	73 34 45	2285	71 48 23	2302
24	SUN W.	63 34 45	2621	65 13 12	2638	66 51 15	2656	68 28 54	2673
	Saturn E.	53 45 14	2319	51 59 42	2336	50 14 35	2354	48 29 54	2371
	Antares E.	63 2 58	2392	61 19 12	2412	59 35 54	2431	57 53 4	2451
	α Aquilæ E.	109 31 2	2874	107 58 10	2880	106 25 25	2886	104 52 48	2894
25	SUN W.	76 31 13	2763	78 6 30	2780	79 41 24	2798	81 15 54	2816
	Saturn E.	39 52 44	2460	38 10 34	2478	36 28 50	2497	34 47 32	2515
	Antares E.	49 26 8	2558	47 46 15	2581	46 6 54	2604	44 28 5	2629
	α Aquilæ E.	97 12 44	2950	95 41 28	2963	94 10 29	2977	92 39 48	2992
26	SUN W.	89 2 45	2902	90 35 2	2919	92 6 57	2935	93 38 31	2952
	Saturn E.	26 27 29	2611	24 48 49	2632	23 10 37	2654	21 32 55	2677
	Antares E.	36 22 37	2766	34 47 24	2798	33 12 54	2832	31 39 8	2869
	α Aquilæ E.	85 11 19	3078	83 42 42	3096	82 14 28	3115	80 46 37	3135
27	SUN W.	101 11 19	3030	102 40 55	3045	104 10 12	3059	105 39 12	3073
	Spica W.	24 55 45	2842	26 29 18	2840	28 2 54	2841	29 36 29	2842
	α Aquilæ E.	73 33 38	3244	72 8 21	3269	70 43 33	3293	69 19 13	3319
	Fomalhaut E.	106 53 11	3004	105 23 3	3013	103 53 6	3022	102 23 20	3032
28	SUN W.	112 59 57	3140	114 27 18	3153	115 54 23	3164	117 21 15	3177
	Spica W.	37 23 17	2869	38 56 16	2875	40 29 7	2882	42 1 49	2889
	α Aquilæ E.	62 25 16	3461	61 4 8	3492	59 43 35	3526	58 23 40	3563
	Fomalhaut E.	94 57 34	3082	93 29 2	3093	92 0 44	3103	90 32 38	3114
29	SUN W.	124 32 5	3231	125 57 37	3241	127 22 57	3251	128 48 6	3260
	Spica W.	49 42 57	2926	51 14 43	2934	52 46 19	2941	54 17 46	2948
	α Aquilæ E.	51 54 23	3769	50 38 49	3819	49 24 7	3873	48 10 20	3929
	Fomalhaut E.	83 15 29	3170	81 48 44	3181	80 22 12	3193	78 55 54	3204
30	Spica W.	61 52 51	2981	63 23 27	2987	64 53 56	2993	66 24 17	2999
	Saturn W.	24 37 18	2985	26 7 50	2989	27 38 17	2991	29 8 41	2995
	Antares W.	18 8 46	3642	19 26 35	3552	20 46 2	3479	22 6 49	3423
	Fomalhaut E.	71 47 58	3266	70 23 7	3280	68 58 32	3293	67 34 12	3307
	α Pegasi E.	86 38 51	3265	85 13 58	3274	83 49 16	3282	82 24 43	3291
	Jupiter E.	110 41 8	2956	109 10 0	2962	107 39 0	2969	106 8 9	2976
31	Spica W.	73 54 19	3026	75 24 0	3031	76 53 35	3035	78 23 4	3039
	Saturn W.	36 39 26	3014	38 9 21	3019	39 39 10	3023	41 8 54	3026
	Antares W.	29 3 20	3262	30 28 16	3245	31 53 32	3230	33 19 6	3218
	Fomalhaut E.	60 36 45	3384	59 14 10	3401	57 51 55	3420	56 30 1	3439
	α Pegasi E.	75 24 41	3339	74 1 14	3349	72 37 59	3359	71 14 56	3371
	Jupiter E.	98 35 46	3003	97 5 37	3009	95 35 35	3014	94 5 39	3018

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
		° ' "		° ' "		° ' "		° ' "	
21	SUN W.	29 30 36	2342	31 15 34	2350	33 0 20	2359	34 44 54	2370
	Saturn E.	90 14 33	2043	88 22 5	2052	86 29 52	2062	84 37 54	2072
	Antares E.	99 0 45	2104	97 9 52	2113	95 19 13	2123	93 28 49	2133
22	SUN W.	43 23 43	2430	45 6 35	2443	46 49 8	2458	48 31 20	2472
	Saturn E.	75 22 24	2133	73 32 16	2147	71 42 29	2161	69 53 2	2175
	Antares E.	84 20 59	2194	82 32 22	2208	80 44 6	2223	78 56 12	2237
23	SUN W.	56 57 1	2552	58 37 2	2569	60 16 40	2586	61 55 54	2603
	Saturn E.	60 51 25	2253	59 4 16	2269	57 17 31	2285	55 31 10	2302
	Antares E.	70 2 27	2319	68 16 55	2337	66 31 50	2355	64 47 11	2373
24	SUN W.	70 6 10	2692	71 43 1	2709	73 19 29	2727	74 55 33	2745
	Saturn E.	46 45 37	2379	45 1 46	2406	43 18 20	2424	41 35 19	2442
	Antares E.	56 10 42	2482	54 28 49	2493	52 47 26	2514	51 6 32	2535
	α Aquilæ E.	103 20 22	2903	101 48 7	2913	100 16 5	2924	98 44 17	2936
25	SUN W.	82 50 1	2833	84 23 46	2851	85 57 8	2868	87 30 8	2886
	Saturn E.	33 6 39	2533	31 26 12	2552	29 46 11	2572	28 6 37	2591
	Antares E.	42 49 49	2654	41 12 7	2680	39 35 0	2707	37 58 30	2735
	α Aquilæ E.	91 9 25	3008	89 39 22	3025	88 9 40	3042	86 40 19	3059
26	SUN W.	95 9 44	2968	96 40 37	2984	98 11 10	2999	99 41 24	3014
	Saturn E.	19 55 44	2702	18 19 6	2730	16 43 6	2761	15 7 47	2798
	Antares E.	30 6 10	2910	28 34 4	2955	27 2 55	3006	25 32 49	3063
	α Aquilæ E.	79 19 10	3157	77 52 9	3177	76 25 32	3199	74 59 22	3221
27	SUN W.	107 7 55	3087	108 36 20	3101	110 4 28	3114	111 32 20	3127
	Spica W.	31 10 2	2845	32 43 31	2851	34 16 53	2856	35 50 9	2862
	α Aquilæ E.	67 55 23	3345	66 32 3	3372	65 9 15	3401	63 46 59	3430
	Fomalhaut E.	100 53 47	3041	99 24 25	3051	97 55 15	3061	96 26 18	3072
28	SUN W.	118 47 52	3188	120 14 15	3200	121 40 24	3210	123 6 21	3221
	Spica W.	43 34 22	2897	45 6 45	2905	46 38 58	2912	48 11 2	2919
	α Aquilæ E.	57 4 25	3599	55 45 49	3637	54 27 55	3679	53 10 46	3723
	Fomalhaut E.	89 4 46	3125	87 37 7	3136	86 9 41	3147	84 42 28	3158
29	SUN W.	130 13 4	3270	131 37 50	3278	133 2 27	3287	134 26 53	3295
	Spica W.	55 49 4	2955	57 20 13	2962	58 51 14	2968	60 22 7	2975
	α Aquilæ E.	46 57 30	3991	45 45 42	4058	44 34 59	4129	43 25 25	4206
	Fomalhaut E.	77 29 50	3216	76 4 0	3229	74 38 25	3241	73 13 4	3253
30	Spica W.	67 54 31	3005	69 24 38	3010	70 54 38	3015	72 24 32	3021
	Saturn W.	30 39 0	2999	32 9 14	3003	33 39 23	3007	35 9 27	3011
	Antares W.	23 28 39	3377	24 51 22	3339	26 12 48	3309	27 38 49	3283
	Fomalhaut E.	66 10 8	3321	64 46 21	3336	63 22 51	3352	61 59 39	3367
	α Pegasi E.	81 0 21	3300	79 36 10	3309	78 12 9	3319	76 48 19	3329
	Jupiter E.	104 37 26	2981	103 6 50	2987	101 36 21	2993	100 6 0	2999
31	Spica W.	79 52 28	3043	81 21 47	3047	82 51 1	3051	84 20 10	3055
	Saturn W.	42 38 34	3030	44 8 9	3034	45 37 40	3038	47 7 6	3040
	Antares W.	34 44 54	3208	36 10 54	3198	37 37 6	3191	39 3 26	3183
	Fomalhaut E.	55 8 29	3459	53 47 19	3481	52 26 34	3504	51 6 14	3528
	α Pegasi E.	69 52 6	3382	68 29 29	3394	67 7 6	3407	65 44 57	3420
	Jupiter E.	92 35 49	3022	91 6 4	3026	89 36 24	3030	88 6 49	3034

Day of the Month.	AIRY's Day Numbers— For correcting the Places of the Fixed Stars.					Mean Time of Transit of the First Point of Aries.
	At Mean Midnight,					
	Logarithms of				Value of L	
	E	F	G	H		
1	1°45275	0°68901	0°18373	1°52390	91°843	^h ^m ^s 17 17 53°59
2	1°45741	0°69461	0°18465	1°52374	91°331	17 13 57°68
3	1°46202	0°70062	0°18557	1°52359	90°815	17 10 1°77
4	1°46656	0°70703	0°18648	1°52343	90°294	17 6 5°85
5	1°47103	0°71384	0°18739	1°52326	89°769	17 2 9°94
6	1°47545	0°72102	0°18830	1°52308	89°241	16 58 14°03
7	1°47979	0°72850	0°18920	1°52289	88°708	16 54 18°12
8	1°48406	0°73624	0°19008	1°52270	88°171	16 50 22°21
9	1°48828	0°74428	0°19096	1°52251	87°631	16 46 26°30
10	1°49245	0°75262	0°19183	1°52231	87°087	16 42 30°39
11	1°49653	0°76124	0°19270	1°52209	86°540	16 38 34°48
12	1°50057	0°77007	0°19357	1°52187	85°990	16 34 38°57
13	1°50454	0°77909	0°19443	1°52165	85°437	16 30 42°66
14	1°50845	0°78826	0°19527	1°52142	84°880	16 26 46°75
15	1°51231	0°79761	0°19612	1°52119	84°320	16 22 50°84
16	1°51610	0°80714	0°19696	1°52095	83°757	16 18 54°93
17	1°51982	0°81683	0°19778	1°52070	83°191	16 14 59°02
18	1°52350	0°82665	0°19860	1°52045	82°623	16 11 3°11
19	1°52710	0°83657	0°19941	1°52019	82°053	16 7 7°20
20	1°53064	0°84656	0°20021	1°51993	81°480	16 3 11°29
21	1°53414	0°85664	0°20101	1°51967	80°905	15 59 15°38
22	1°53757	0°86678	0°20178	1°51940	80°328	15 55 19°47
23	1°54093	0°87698	0°20258	1°51913	79°748	15 51 23°56
24	1°54425	0°88721	0°20336	1°51885	79°168	15 47 27°65
25	1°54750	0°89747	0°20413	1°51857	78°586	15 43 31°74
26	1°55069	0°90776	0°20488	1°51827	78°003	15 39 35°83
27	1°55383	0°91806	0°20563	1°51798	77°418	15 35 39°92
28	1°55691	0°92836	0°20637	1°51769	76°832	15 31 44°01
29	1°55992	0°93865	0°20711	1°51739	76°246	15 27 48°10
30	1°56289	0°94893	0°20783	1°51709	75°659	15 23 52°19
31	1°56579	0°95919	0°20854	1°51679	75°071	15 19 56°28
32	1°56862	0°96942	0°20925	1°51649	74°482	15 16 0°37

Day of the Month.	Bessel's Day Numbers— For correcting the Places of the Fixed Stars.				Days elapsed of the Julian Period at Mean Noon.	Mean Equinoctial Time, adding 0 ^h .269681. Days.	From Mean Noon of January 1.	
	At Mean Midnight,						Day of the Year.	Fraction of the Year.*
	Logarithms of							
	A	B	C	D				
1	+0.5267	—1.3035	+9.5141	+0.9248	2403515	101	182	.4983
2	0.5646	1.3021	9.5183	0.9243	2403516	102	183	.5010
3	0.5993	1.3006	9.5226	0.9236	2403517	103	184	.5038
4	+0.6313	—1.2990	+9.5267	+0.9230	2403518	104	185	.5065
5	0.6611	1.2972	9.5309	0.9223	2403519	105	186	.5093
6	0.6888	1.2953	9.5349	0.9216	2403520	106	187	.5120
7	+0.7147	—1.2933	+9.5389	+0.9209	2403521	107	188	.5147
8	0.7391	1.2912	9.5429	0.9201	2403522	108	189	.5175
9	0.7620	1.2889	9.5468	0.9193	2403523	109	190	.5202
10	+0.7837	—1.2865	+9.5507	+0.9185	2403524	110	191	.5229
11	0.8043	1.2840	9.5544	0.9176	2403525	111	192	.5257
12	0.8238	1.2813	9.5582	0.9168	2403526	112	193	.5284
13	+0.8423	—1.2785	+9.5619	+0.9159	2403527	113	194	.5312
14	0.8600	1.2755	9.5655	0.9150	2403528	114	195	.5339
15	0.8769	1.2724	9.5691	0.9140	2403529	115	196	.5366
16	+0.8930	—1.2692	+9.5726	+0.9130	2403530	116	197	.5394
17	0.9085	1.2658	9.5761	0.9120	2403531	117	198	.5421
18	0.9233	1.2622	9.5795	0.9110	2403532	118	199	.5448
19	+0.9375	—1.2585	+9.5829	+0.9099	2403533	119	200	.5476
20	0.9511	1.2547	9.5862	0.9089	2403534	120	201	.5503
21	0.9642	1.2507	9.5895	0.9078	2403535	121	202	.5531
22	+0.9768	—1.2465	+9.5927	+0.9067	2403536	122	203	.5558
23	0.9889	1.2422	9.5959	0.9056	2403537	123	204	.5585
24	1.0006	1.2377	9.5990	0.9044	2403538	124	205	.5613
25	+1.0119	—1.2331	+9.6021	+0.9033	2403539	125	206	.5640
26	1.0227	1.2282	9.6051	0.9021	2403540	126	207	.5667
27	1.0332	1.2232	9.6081	0.9009	2403541	127	208	.5695
28	+1.0433	—1.2180	+9.6110	+0.8997	2403542	128	209	.5722
29	1.0531	1.2127	9.6139	0.8984	2403543	129	210	.5750
30	1.0625	1.2071	9.6167	0.8972	2403544	130	211	.5777
31	1.0717	1.2013	9.6195	0.8959	2403545	131	212	.5804
32	+1.0805	—1.1954	+9.6222	+0.8947	2403546	132	213	.5832

* Add .0012 if Fraction be required for the time 4, see page 329.

* Add .0012 if Fraction be required for the time t , see page 329.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be added to subtr. from Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
Sat.	1	^h 8 ^m 47 ^s 31.78	9.694	N. 17° 54' 5.4"	38.14	^m 6 ^s 59	6 1.64	0.162
Sun.	2	8 51 24.14	9.669	17 38 41.3	38.85	6 50	5 57.46	0.187
Mon.	3	8 55 15.88	9.644	17 23 0.0	39.57	6 42	5 52.66	0.213
Tues.	4	8 59 7.03	9.619	17 7 1.8	40.28	6 33	5 47.26	0.238
Wed.	5	9 2 57.58	9.594	16 50 46.9	40.96	6 25	5 41.26	0.262
Thur.	6	9 6 47.53	9.569	16 34 15.7	41.64	6 16	5 34.68	0.286
Frid.	7	9 10 36.89	9.545	16 17 28.4	42.30	6 07	5 27.51	0.311
Sat.	8	9 14 25.69	9.521	16 0 25.3	42.95	5 98	5 19.77	0.334
Sun.	9	9 18 13.92	9.498	15 43 6.8	43.59	5 90	5 11.47	0.357
Mon.	10	9 22 1.60	9.475	15 25 33.0	44.22	5 82	5 2.62	0.380
Tues.	11	9 25 48.72	9.452	15 7 44.3	44.83	5 74	4 53.22	0.403
Wed.	12	9 29 35.31	9.430	14 49 41.0	45.43	5 66	4 43.29	0.425
Thur.	13	9 33 21.37	9.408	14 31 23.5	46.02	5 58	4 32.82	0.447
Frid.	14	9 37 6.90	9.386	14 12 52.0	46.60	5 50	4 21.83	0.469
Sat.	15	9 40 51.92	9.365	13 54 6.8	47.16	5 42	4 10.32	0.490
Sun.	16	9 44 36.42	9.344	13 35 8.3	47.71	5 34	3 58.30	0.511
Mon.	17	9 48 20.41	9.323	13 15 56.9	48.24	5 27	3 45.78	0.532
Tues.	18	9 52 3.90	9.302	12 56 32.8	48.76	5 20	3 32.75	0.553
Wed.	19	9 55 46.90	9.281	12 36 56.4	49.27	5 13	3 19.23	0.574
Thur.	20	9 59 29.40	9.261	12 17 8.0	49.76	5 06	3 5.22	0.594
Frid.	21	10 3 11.43	9.241	11 57 7.9	50.24	4 99	2 50.73	0.614
Sat.	22	10 6 52.98	9.221	11 36 56.6	50.70	4 92	2 35.76	0.633
Sun.	23	10 10 34.06	9.203	11 16 34.2	51.16	4 86	2 20.33	0.652
Mon.	24	10 14 14.71	9.185	10 56 1.1	51.60	4 79	2 4.47	0.670
Tues.	25	10 17 54.93	9.167	10 35 17.6	52.02	4 73	1 48.18	0.687
Wed.	26	10 21 34.74	9.150	10 14 24.2	52.43	4 67	1 31.48	0.704
Thur.	27	10 25 14.14	9.134	9 53 21.0	52.83	4 62	1 14.38	0.721
Frid.	28	10 28 53.15	9.118	9 32 8.5	53.21	4 57	0 56.89	0.737
Sat.	29	10 32 31.80	9.103	9 10 46.9	53.58	4 52	0 39.03	0.751
Sun.	30	10 36 10.10	9.089	8 49 16.6	53.94	4 47	0 20.83	0.765
Mon.	31	10 39 48.06	9.075	8 27 37.9	54.28	4 43	0 2.29	0.779
Tues.	32	10 43 25.72	9.063	N. 8 5 51.0	54.62	4 38	0 16.56	0.791

* Mean Time of the Semidiameter passing may be found by subtracting 0.18 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be subt. from added to Mean Time.	Sidereal Time.
		Apparent Right Ascension.	Apparent Declination.	Semidiam.*		
Sat.	1	^h 8 ^m 47 ^s 30·81	[°] N. 17 ['] 54 ["] 9·3	['] 15 ["] 48·0	^m 6 ^s 1·66	^h 8 ^m 41 ^s 29·15
Sun.	2	8 51 23·18	17 38 45·2	15 48·1	5 57·48	8 45 25·70
Mon.	3	8 55 14·94	17 23 3·9	15 48·2	5 52·68	8 49 22·26
Tues.	4	8 59 6·10	17 7 5·7	15 48·4	5 47·28	8 53 18·82
Wed.	5	9 2 56·67	16 50 50·8	15 48·5	5 41·29	8 57 15·38
Thur.	6	9 6 46·64	16 34 19·6	15 48·6	5 34·71	9 1 11·93
Frid.	7	9 10 36·02	16 17 32·3	15 48·8	5 27·54	9 5 8·48
Sat.	8	9 14 24·84	16 0 29·2	15 49·0	5 19·80	9 9 5·04
Sun.	9	9 18 13·10	15 43 10·6	15 49·1	5 11·50	9 13 1·60
Mon.	10	9 22 0·80	15 25 36·7	15 49·3	5 2·65	9 16 58·15
Tues.	11	9 25 47·95	15 7 47·9	15 49·4	4 53·25	9 20 54·70
Wed.	12	9 29 34·57	14 49 44·5	15 49·6	4 43·32	9 24 51·25
Thur.	13	9 33 20·66	14 31 26·9	15 49·8	4 32·85	9 28 47·81
Frid.	14	9 37 6·22	14 12 55·3	15 49·9	4 21·86	9 32 44·36
Sat.	15	9 40 51·27	13 54 10·1	15 50·1	4 10·35	9 36 40·92
Sun.	16	9 44 35·80	13 35 11·5	15 50·3	3 58·33	9 40 37·47
Mon.	17	9 48 19·83	13 15 59·9	15 50·5	3 45·81	9 44 34·02
Tues.	18	9 52 3·36	12 56 35·7	15 50·7	3 32·78	9 48 30·58
Wed.	19	9 55 46·39	12 36 59·2	15 50·9	3 19·26	9 52 27·13
Thur.	20	9 59 28·93	12 17 10·6	15 51·1	3 5·25	9 56 23·68
Frid.	21	10 3 10·99	11 57 10·3	15 51·3	2 50·76	10 0 20·23
Sat.	22	10 6 52·58	11 36 58·7	15 51·5	2 35·79	10 4 16·79
Sun.	23	10 10 33·70	11 16 36·1	15 51·7	2 20·36	10 8 13·34
Mon.	24	10 14 14·39	10 56 2·8	15 51·9	2 4·49	10 12 9·90
Tues.	25	10 17 54·65	10 35 19·2	15 52·1	1 48·20	10 16 6·45
Wed.	26	10 21 34·50	10 14 25·5	15 52·3	1 31·50	10 20 3·00
Thur.	27	10 25 13·95	9 53 22·1	15 52·6	1 14·39	10 23 59·56
Frid.	28	10 28 53·01	9 32 9·3	15 52·8	0 56·90	10 27 56·11
Sat.	29	10 32 31·70	9 10 47·5	15 53·0	0 39·04	10 31 52·66
Sun.	30	10 36 10·04	8 49 16·9	15 53·2	0 20·83	10 35 49·21
Mon.	31	10 39 48·05	8 27 37·9	15 53·5	0 2·29	10 39 45·76
Tues.	32	10 43 25·76	N. 8 5 50·8	15 53·7	0 16·56	10 43 42·32

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

MEAN TIME.

Day of the Month.	THE SUN'S		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Apparent			Semidiameter.		Horizontal Parallax.	
	Longitude.	Latitude.					
	Noon.	Noon.		Noon.	Noon.	Midnight.	Noon.	Midnight.
1	129 26 13.2	N.0°60	0°0063053	14 48.3	14 46.7	54 14.6	54 8.6
2	130 23 38.6	0°50	0°0062441	14 45.5	14 44.6	54 4.1	54 0.8
3	131 21 4.9	0°39	0°0061816	14 44.0	14 43.9	53 58.8	53 58.2
4	132 18 32.1	0°28	0°0061178	14 44.1	14 44.6	53 58.9	54 0.9
5	133 16 0.4	0°16	0°0060528	14 45.5	14 46.9	54 4.4	54 9.4
6	134 13 29.8	N.0°06	0°0059866	14 48.7	14 50.9	54 15.9	54 24.0
7	135 11 0.4	S.0°05	0°0059191	14 53.6	14 56.8	54 33.8	54 45.5
8	136 8 32.3	0°15	0°0058502	15 0.4	15 4.6	54 58.9	55 14.2
9	137 6 5.6	0°20	0°0057799	15 9.3	15 14.5	55 31.4	55 50.4
10	138 3 40.4	0°25	0°0057081	15 20.2	15 26.4	56 11.4	56 34.0
11	139 1 16.7	0°28	0°0056349	15 33.0	15 40.0	56 58.2	57 23.8
12	139 58 54.5	0°27	0°0055601	15 47.2	15 54.7	57 50.4	58 17.7
13	140 56 33.9	0°24	0°0054835	16 2.2	16 9.6	58 45.2	59 12.3
14	141 54 14.9	0°18	0°0054050	16 16.7	16 23.4	59 38.5	60 3.1
15	142 51 57.4	S.0°09	0°0053245	16 29.5	16 34.8	60 25.4	60 44.7
16	143 49 41.4	N.0°04	0°0052420	16 39.1	16 42.2	61 0.4	61 11.9
17	144 47 26.9	0°18	0°0051573	16 44.1	16 44.6	61 18.7	61 20.6
18	145 45 13.8	0°33	0°0050703	16 43.8	16 41.6	61 17.5	61 9.5
19	146 43 2.0	0°47	0°0049812	16 38.1	16 33.5	60 56.8	60 39.9
20	147 40 51.5	0°60	0°0048900	16 27.9	16 21.5	60 19.4	59 55.8
21	148 38 42.3	0°71	0°0047967	16 14.4	16 6.9	59 29.9	59 2.5
22	149 36 34.3	0°78	0°0047015	15 59.2	15 51.4	58 34.2	58 5.6
23	150 34 27.7	0°82	0°0046046	15 43.7	15 36.2	57 37.4	57 9.9
24	151 32 22.3	0°85	0°0045061	15 29.0	15 22.3	56 43.7	56 19.1
25	152 30 18.2	0°83	0°0044063	15 16.1	15 10.4	55 56.2	55 35.3
26	153 28 15.4	0°80	0°0043052	15 5.2	15 0.7	55 16.5	54 59.8
27	154 26 13.9	0°73	0°0042030	14 56.7	14 53.4	54 45.3	54 33.0
28	155 24 13.8	0°65	0°0040998	14 50.5	14 48.3	54 22.7	54 14.5
29	156 22 15.1	0°56	0°0039957	14 46.6	14 45.4	54 8.2	54 3.8
30	157 20 17.8	0°46	0°0038908	14 44.6	14 44.3	54 1.1	54 0.0
31	158 18 22.1	0°35	0°0037852	14 44.5	14 45.0	54 0.4	54 2.3
32	159 16 27.9	N.0°23	0°0036790	14 45.9	14 47.1	54 5.5	54 10.0

MEAN TIME.

THE MOON'S

Day of the Week.	Day of the Month.	THE MOON'S							
		Longitude.		Latitude.		Age.	Meridian		
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.		
		° ' "	° ' "	N. ° ' "	N. ° ' "	d	h m		
Sat.	1	287 41 51.4	293 39 11.0	N.3 16 8.3	N.2 49 20.3	12.6	10 54.5		
Sun.	2	299 35 15.7	305 30 21.6	2 20 46.5	1 50 45.1	13.6	11 41.6		
Mon.	3	311 24 44.8	317 18 42.0	1 19 34.6	N.0 47 34.1	14.6	12 27.6		
Tues.	4	323 12 30.1	329 6 26.5	N.0 15 2.7	S.0 17 40.1	15.6	13 12.2		
Wed.	5	335 0 49.3	340 55 58.5	S.0 50 15.1	1 22 22.3	16.6	13 55.9		
Thur.	6	346 52 14.6	352 49 59.9	1 53 42.5	2 23 56.6	17.6	14 38.9		
Frid.	7	358 49 37.5	4 51 32.7	2 52 45.4	3 19 50.1	18.6	15 21.9		
Sat.	8	10 56 11.2	17 4 0.2	3 44 52.2	4 7 33.1	19.6	16 5.5		
Sun.	9	23 15 27.8	29 31 2.1	4 27 35.0	4 44 39.7	20.6	16 50.5		
Mon.	10	35 51 10.9	42 16 21.6	4 58 29.9	5 8 48.8	21.6	17 37.7		
Tues.	11	48 46 59.1	55 23 26.2	5 15 20.0	5 17 49.1	22.6	18 27.9		
Wed.	12	62 6 1.9	68 54 59.8	5 16 2.5	5 9 49.8	23.6	19 21.5		
Thur.	13	75 50 27.6	82 52 25.8	4 59 3.2	4 43 39.3	24.6	20 18.6		
Frid.	14	90 0 45.9	97 15 9.9	4 23 39.7	3 59 12.1	25.6	21 18.5		
Sat.	15	104 35 10.2	112 0 8.6	3 30 31.5	2 57 59.7	26.6	22 19.8		
Sun.	16	119 29 17.2	127 1 39.5	2 22 6.4	1 43 29.2	27.6	23 20.9		
Mon.	17	134 36 11.5	142 11 44.6	S.1 2 51.0	S.0 21 0.4	28.6	6		
Tues.	18	149 47 7.0	157 21 7.9	N.0 21 12.0	N.1 2 54.1	0.3	0 20.3		
Wed.	19	164 52 38.3	172 20 35.4	1 43 16.3	2 21 32.5	1.3	1 17.4		
Thur.	20	179 44 3.0	187 2 14.3	2 57 2.0	3 29 11.2	2.3	2 12.1		
Frid.	21	194 14 32.0	201 20 30.1	3 57 33.5	4 21 49.7	3.3	3 4.6		
Sat.	22	208 19 51.4	215 12 29.4	4 41 47.5	4 57 21.0	4.3	3 55.7		
Sun.	23	221 58 26.3	228 37 51.4	5 8 29.4	5 15 16.5	5.3	4 45.9		
Mon.	24	235 11 0.8	241 38 15.7	5 17 49.4	5 16 17.7	6.3	5 35.6		
Tues.	25	248 0 0.9	254 16 45.1	5 10 53.1	5 1 48.5	7.3	6 25.1		
Wed.	26	260 28 57.5	266 37 9.2	4 49 17.9	4 33 35.8	8.3	7 14.3		
Thur.	27	272 41 51.7	278 43 35.8	4 14 57.3	3 53 37.9	9.3	8 3.2		
Frid.	28	284 42 52.0	290 40 9.7	3 29 53.3	3 3 59.6	10.3	8 51.5		
Sat.	29	296 35 56.4	302 30 38.5	2 36 13.5	2 6 51.9	11.3	9 38.9		
Sun.	30	308 24 40.9	314 18 26.8	1 36 12.3	N.1 4 33.1	12.3	10 25.1		
Mon.	31	320 12 16.8	326 6 31.5	N.0 32 12.5	S.0 0 30.4	13.3	11 10.2		
Tues.	32	332 1 29.2	337 57 27.0	S.0 33 16.0	S.1 5 44.5	14.3	11 54.3		

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 1.				MONDAY 3.			
0	19 14 54 ^s 58	S. 19 2 28 ^s 6	16 ^s 79	0	20 53 58 ^s 33	S. 16 5 32 ^s 1	55 ^s 48
1	19 17 0 ^s 72	19 0 45 ^s 2	17 ^s 67	1	20 55 59 ^s 40	15 59 57 ^s 1	56 ^s 18
2	19 19 6 ^s 78	18 58 56 ^s 6	18 ^s 55	2	20 58 0 ^s 35	15 54 17 ^s 9	56 ^s 88
3	19 21 12 ^s 76	18 57 2 ^s 6	19 ^s 44	3	21 0 1 ^s 17	15 48 34 ^s 6	57 ^s 57
4	19 23 18 ^s 66	18 55 3 ^s 3	20 ^s 32	4	21 2 1 ^s 88	15 42 47 ^s 1	58 ^s 26
5	19 25 24 ^s 47	18 52 58 ^s 8	21 ^s 18	5	21 4 2 ^s 46	15 36 55 ^s 4	58 ^s 95
6	19 27 30 ^s 20	18 50 49 ^s 1	22 ^s 06	6	21 6 2 ^s 93	15 30 59 ^s 7	59 ^s 62
7	19 29 35 ^s 84	18 48 34 ^s 1	22 ^s 93	7	21 8 3 ^s 27	15 25 0 ^s 0	60 ^s 29
8	19 31 41 ^s 39	18 46 13 ^s 9	23 ^s 79	8	21 10 3 ^s 50	15 18 56 ^s 2	60 ^s 97
9	19 33 46 ^s 85	18 43 48 ^s 6	24 ^s 66	9	21 12 3 ^s 60	15 12 48 ^s 4	61 ^s 63
10	19 35 52 ^s 22	18 41 18 ^s 0	25 ^s 52	10	21 14 3 ^s 58	15 6 36 ^s 6	62 ^s 29
11	19 37 57 ^s 50	18 38 42 ^s 3	26 ^s 38	11	21 16 3 ^s 45	15 0 20 ^s 9	62 ^s 94
12	19 40 2 ^s 68	18 36 1 ^s 4	27 ^s 24	12	21 18 3 ^s 19	14 54 1 ^s 3	63 ^s 59
13	19 42 7 ^s 77	18 33 15 ^s 4	28 ^s 08	13	21 20 2 ^s 82	14 47 37 ^s 8	64 ^s 23
14	19 44 12 ^s 77	18 30 24 ^s 4	28 ^s 93	14	21 22 2 ^s 32	14 41 10 ^s 5	64 ^s 87
15	19 46 17 ^s 66	18 27 28 ^s 2	29 ^s 78	15	21 24 1 ^s 71	14 34 39 ^s 4	65 ^s 49
16	19 48 22 ^s 46	18 24 27 ^s 0	30 ^s 63	16	21 26 0 ^s 97	14 28 4 ^s 6	66 ^s 12
17	19 50 27 ^s 16	18 21 20 ^s 7	31 ^s 46	17	21 28 0 ^s 12	14 21 26 ^s 0	66 ^s 75
18	19 52 31 ^s 76	18 18 9 ^s 5	32 ^s 29	18	21 29 59 ^s 16	14 14 43 ^s 6	67 ^s 37
19	19 54 36 ^s 25	18 14 53 ^s 2	33 ^s 13	19	21 31 58 ^s 07	14 7 57 ^s 6	67 ^s 98
20	19 56 40 ^s 65	18 11 31 ^s 9	33 ^s 96	20	21 33 56 ^s 87	14 1 7 ^s 9	68 ^s 58
21	19 58 44 ^s 94	18 8 5 ^s 7	34 ^s 78	21	21 35 55 ^s 56	13 54 14 ^s 6	69 ^s 18
22	20 0 49 ^s 12	18 4 34 ^s 6	35 ^s 60	22	21 37 54 ^s 13	13 47 17 ^s 7	69 ^s 77
23	20 2 53 ^s 20	S. 18 0 58 ^s 5	36 ^s 42	23	21 39 52 ^s 58	S. 13 40 17 ^s 3	70 ^s 36
SUNDAY 2.				TUESDAY 4.			
0	20 4 57 ^s 17	S. 17 57 17 ^s 6	37 ^s 23	0	21 41 50 ^s 92	S. 13 33 13 ^s 4	70 ^s 95
1	20 7 1 ^s 03	17 53 31 ^s 8	38 ^s 04	1	21 43 49 ^s 15	13 26 5 ^s 9	71 ^s 53
2	20 9 4 ^s 79	17 49 41 ^s 1	38 ^s 85	2	21 45 47 ^s 26	13 18 55 ^s 0	72 ^s 10
3	20 11 8 ^s 43	17 45 4 ^s 6	39 ^s 64	3	21 47 45 ^s 27	13 11 40 ^s 7	72 ^s 67
4	20 13 11 ^s 96	17 41 45 ^s 4	40 ^s 44	4	21 49 43 ^s 16	13 4 23 ^s 0	73 ^s 23
5	20 15 15 ^s 38	17 37 40 ^s 3	41 ^s 24	5	21 51 40 ^s 95	12 57 1 ^s 9	73 ^s 79
6	20 17 18 ^s 69	17 33 30 ^s 5	42 ^s 03	6	21 53 38 ^s 62	12 49 37 ^s 5	74 ^s 34
7	20 19 21 ^s 89	17 29 16 ^s 0	42 ^s 81	7	21 55 36 ^s 19	12 42 9 ^s 8	74 ^s 88
8	20 21 24 ^s 97	17 24 56 ^s 8	43 ^s 59	8	21 57 33 ^s 65	12 34 38 ^s 9	75 ^s 42
9	20 23 27 ^s 94	17 20 32 ^s 9	44 ^s 36	9	21 59 31 ^s 01	12 27 4 ^s 8	75 ^s 96
10	20 25 30 ^s 79	17 16 4 ^s 4	45 ^s 13	10	22 1 28 ^s 26	12 19 27 ^s 4	76 ^s 49
11	20 27 33 ^s 52	17 11 31 ^s 3	45 ^s 91	11	22 3 25 ^s 41	12 11 46 ^s 9	77 ^s 01
12	20 29 36 ^s 14	17 6 53 ^s 5	46 ^s 68	12	22 5 22 ^s 45	12 4 3 ^s 3	77 ^s 52
13	20 31 38 ^s 64	17 2 11 ^s 2	47 ^s 43	13	22 7 19 ^s 39	11 56 16 ^s 6	78 ^s 03
14	20 33 41 ^s 03	16 57 24 ^s 3	48 ^s 18	14	22 9 16 ^s 24	11 48 26 ^s 9	78 ^s 54
15	20 35 43 ^s 30	16 52 33 ^s 0	48 ^s 93	15	22 11 12 ^s 98	11 40 34 ^s 1	79 ^s 05
16	20 37 45 ^s 45	16 47 37 ^s 1	49 ^s 68	16	22 13 9 ^s 63	11 32 38 ^s 3	79 ^s 54
17	20 39 47 ^s 48	16 42 36 ^s 8	50 ^s 42	17	22 15 6 ^s 18	11 24 39 ^s 6	80 ^s 03
18	20 41 49 ^s 39	16 37 32 ^s 1	51 ^s 16	18	22 17 2 ^s 63	11 16 38 ^s 0	80 ^s 51
19	20 43 51 ^s 18	16 32 22 ^s 9	51 ^s 89	19	22 18 58 ^s 99	11 8 33 ^s 5	80 ^s 99
20	20 45 52 ^s 85	16 27 9 ^s 4	52 ^s 62	20	22 20 55 ^s 26	11 0 26 ^s 1	81 ^s 47
21	20 47 54 ^s 41	16 21 51 ^s 5	53 ^s 34	21	22 22 51 ^s 44	10 52 15 ^s 9	81 ^s 93
22	20 49 55 ^s 84	16 16 29 ^s 3	54 ^s 06	22	22 24 47 ^s 53	10 44 2 ^s 9	82 ^s 40
23	20 51 57 ^s 15	16 11 2 ^s 8	54 ^s 77	23	22 26 43 ^s 52	10 35 47 ^s 1	82 ^s 86
24	20 53 58 ^s 33	S. 16 5 32 ^s 1	55 ^s 48	24	22 28 39 ^s 43	S. 10 27 28 ^s 6	83 ^s 31

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10m.	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10m.
WEDNESDAY 5.				FRIDAY 7.			
0	h m s 22 28 39.43	S. 10 27 28.6	83.31	0	h m s 0 0 17.05	S. 3 6 28.9	98.23
1	22 30 35.26	10 19 7.4	83.75	1	0 2 11.08	2 56 39.0	98.41
2	22 32 31.00	10 10 43.6	84.19	2	0 4 5.13	2 46 48.0	98.58
3	22 34 26.66	10 2 17.1	84.63	3	0 5 59.21	2 36 56.1	98.73
4	22 36 22.24	9 53 48.1	85.05	4	0 7 53.31	2 27 3.2	98.88
5	22 38 17.75	9 45 16.5	85.47	5	0 9 47.43	2 17 9.5	99.03
6	22 40 13.17	9 36 42.4	85.89	6	0 11 41.59	2 7 14.9	99.17
7	22 42 8.52	9 28 5.8	86.31	7	0 13 35.78	1 57 19.5	99.30
8	22 44 3.80	9 19 26.7	86.72	8	0 15 30.01	1 47 23.3	99.43
9	22 45 59.00	9 10 45.2	87.11	9	0 17 24.27	1 37 26.3	99.56
10	22 47 54.13	9 2 1.4	87.50	10	0 19 18.58	1 27 28.6	99.67
11	22 49 49.19	8 53 15.2	87.90	11	0 21 12.93	1 17 30.3	99.78
12	22 51 44.19	8 44 26.6	88.28	12	0 23 7.93	1 7 31.3	99.88
13	22 53 39.12	8 35 35.8	88.65	13	0 25 1.78	0 57 31.7	99.98
14	22 55 33.99	8 26 42.8	89.02	14	0 26 56.28	0 47 31.5	100.08
15	22 57 28.80	8 17 47.5	89.39	15	0 28 50.84	0 37 30.8	100.16
16	22 59 23.55	8 8 50.1	89.75	16	0 30 45.46	0 27 29.6	100.23
17	23 1 18.24	7 59 50.5	90.10	17	0 32 40.14	0 17 28.0	100.31
18	23 3 12.88	7 50 48.9	90.45	18	0 34 34.88	S. 0 7 25.9	100.38
19	23 5 7.46	7 41 45.1	90.80	19	0 36 29.69	N. 0 2 36.6	100.44
20	23 7 1.99	7 32 39.3	91.13	20	0 38 24.57	0 12 39.4	100.50
21	23 8 56.48	7 23 31.5	91.46	21	0 40 19.52	0 22 42.6	100.55
22	23 10 50.92	7 14 21.7	91.79	22	0 42 14.55	0 32 46.0	100.58
23	23 12 45.31	S. 7 5 10.0	92.11	23	0 44 9.65	N. 0 42 49.6	100.62
THURSDAY 6.				SATURDAY 8.			
0	23 14 39.65	S. 6 55 56.4	92.43	0	0 46 4.84	N. 0 52 53.5	100.66
1	23 16 33.96	6 46 40.9	92.73	1	0 48 0.11	1 2 57.5	100.68
2	23 18 28.23	6 37 23.6	93.03	2	0 49 55.48	1 13 1.7	100.70
3	23 20 22.46	6 28 4.5	93.33	3	0 51 50.93	1 23 5.9	100.71
4	23 22 16.66	6 18 43.7	93.62	4	0 53 46.48	1 33 10.2	100.72
5	23 24 10.83	6 9 21.1	93.91	5	0 55 42.12	1 43 14.6	100.72
6	23 26 4.97	5 59 56.8	94.19	6	0 57 37.86	1 53 18.9	100.71
7	23 27 59.08	5 50 30.8	94.47	7	0 59 33.71	2 3 23.1	100.70
8	23 29 53.16	5 41 3.2	94.73	8	1 1 29.66	2 13 27.3	100.68
9	23 31 47.22	5 31 34.0	94.99	9	1 3 25.73	2 23 31.3	100.65
10	23 33 41.27	5 22 3.3	95.24	10	1 5 21.90	2 33 35.1	100.62
11	23 35 35.29	5 12 31.1	95.50	11	1 7 18.19	2 43 38.7	100.58
12	23 37 29.29	5 2 57.3	95.75	12	1 9 14.60	2 53 42.0	100.53
13	23 39 23.28	4 53 22.1	95.98	13	1 11 11.13	3 3 45.0	100.48
14	23 41 17.27	4 43 45.5	96.22	14	1 13 7.79	3 13 47.7	100.42
15	23 43 11.24	4 34 7.5	96.45	15	1 15 4.57	3 23 50.0	100.35
16	23 45 5.21	4 24 28.1	96.67	16	1 17 1.48	3 33 51.9	100.27
17	23 46 59.18	4 14 47.5	96.88	17	1 18 58.53	3 43 53.3	100.19
18	23 48 53.14	4 5 5.5	97.10	18	1 20 55.71	3 53 54.2	100.11
19	23 50 47.11	3 55 22.3	97.30	19	1 22 53.04	4 3 54.6	100.02
20	23 52 41.08	3 45 37.9	97.50	20	1 24 50.51	4 13 54.4	99.92
21	23 54 35.06	3 35 52.3	97.69	21	1 26 48.12	4 23 53.6	99.81
22	23 56 29.04	3 26 5.6	97.88	22	1 28 45.88	4 33 52.1	99.69
23	23 58 23.04	3 16 17.8	98.06	23	1 30 43.80	4 43 49.9	99.57
24	0 0 17.05	S. 3 6 28.9	98.23	24	1 32 41.87	N. 4 53 46.9	99.44

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SUNDAY 9.				TUESDAY 11.			
0	1 32 41 ^s .87	N. 4 53 46 ^s .9	99 ^s .44	0	3 11 12 ^s .04	N. 12 21 47 ^s .2	84 ^s .02
1	1 34 40 ^s .10	5 3 43 ^s .2	99 ^s .31	1	3 13 21 ^s .40	12 30 9 ^s .7	83 ^s .48
2	1 36 38 ^s .49	5 13 38 ^s .6	99 ^s .17	2	3 15 31 ^s .07	12 38 28 ^s .9	82 ^s .93
3	1 38 37 ^s .05	5 23 33 ^s .2	99 ^s .03	3	3 17 41 ^s .03	12 46 44 ^s .8	82 ^s .38
4	1 40 35 ^s .77	5 33 26 ^s .9	98 ^s .87	4	3 19 51 ^s .29	12 54 57 ^s .4	81 ^s .82
5	1 42 34 ^s .66	5 43 19 ^s .6	98 ^s .70	5	3 22 1 ^s .86	13 3 6 ^s .6	81 ^s .23
6	1 44 33 ^s .73	5 53 11 ^s .3	98 ^s .53	6	3 24 12 ^s .73	13 11 12 ^s .2	80 ^s .64
7	1 46 32 ^s .98	6 3 1 ^s .9	98 ^s .35	7	3 26 23 ^s .92	13 19 14 ^s .3	80 ^s .04
8	1 48 32 ^s .40	6 12 51 ^s .5	98 ^s .17	8	3 28 35 ^s .41	13 27 12 ^s .7	79 ^s .43
9	1 50 32 ^s .01	6 22 39 ^s .9	97 ^s .97	9	3 30 47 ^s .21	13 35 7 ^s .5	78 ^s .82
10	1 52 31 ^s .81	6 32 27 ^s .1	97 ^s .76	10	3 32 59 ^s .32	13 42 58 ^s .6	78 ^s .20
11	1 54 31 ^s .79	6 42 13 ^s .0	97 ^s .55	11	3 35 11 ^s .75	13 50 45 ^s .9	77 ^s .55
12	1 56 31 ^s .97	6 51 57 ^s .7	97 ^s .34	12	3 37 24 ^s .50	13 58 29 ^s .2	76 ^s .90
13	1 58 32 ^s .35	7 1 41 ^s .1	97 ^s .12	13	3 39 37 ^s .57	14 6 8 ^s .7	76 ^s .25
14	2 0 32 ^s .92	7 11 23 ^s .1	96 ^s .88	14	3 41 50 ^s .95	14 13 44 ^s .2	75 ^s .57
15	2 2 33 ^s .70	7 21 3 ^s .7	96 ^s .64	15	3 44 4 ^s .66	14 21 15 ^s .6	74 ^s .89
16	2 4 34 ^s .68	7 30 42 ^s .8	96 ^s .40	16	3 46 18 ^s .69	14 28 42 ^s .9	74 ^s .21
17	2 6 35 ^s .87	7 40 20 ^s .5	96 ^s .15	17	3 48 33 ^s .04	14 36 6 ^s .1	73 ^s .51
18	2 8 37 ^s .27	7 49 56 ^s .6	95 ^s .88	18	3 50 47 ^s .72	14 43 25 ^s .0	72 ^s .79
19	2 10 38 ^s .89	7 59 31 ^s .0	95 ^s .60	19	3 53 2 ^s .72	14 50 39 ^s .6	72 ^s .07
20	2 12 40 ^s .72	8 9 3 ^s .8	95 ^s .32	20	3 55 18 ^s .05	14 57 49 ^s .8	71 ^s .33
21	2 14 42 ^s .78	8 18 34 ^s .9	95 ^s .04	21	3 57 33 ^s .71	15 4 55 ^s .6	70 ^s .59
22	2 16 45 ^s .06	8 28 4 ^s .3	94 ^s .75	22	3 59 49 ^s .70	15 11 56 ^s .9	69 ^s .84
23	2 18 47 ^s .56	N. 8 37 31 ^s .9	94 ^s .44	23	4 2 6 ^s .02	N. 15 18 53 ^s .7	69 ^s .07
MONDAY 10.				WEDNESDAY 12.			
0	2 20 50 ^s .29	N. 8 46 57 ^s .6	94 ^s .13	0	4 4 22 ^s .67	N. 15 25 45 ^s .8	68 ^s .29
1	2 22 53 ^s .26	8 56 21 ^s .4	93 ^s .81	1	4 6 39 ^s .65	15 32 33 ^s .2	67 ^s .51
2	2 24 56 ^s .46	9 5 43 ^s .3	93 ^s .48	2	4 8 56 ^s .97	15 39 15 ^s .9	66 ^s .71
3	2 26 59 ^s .90	9 15 3 ^s .2	93 ^s .15	3	4 11 14 ^s .62	15 45 53 ^s .7	65 ^s .90
4	2 29 3 ^s .58	9 24 21 ^s .1	92 ^s .80	4	4 13 32 ^s .60	15 52 26 ^s .7	65 ^s .08
5	2 31 7 ^s .51	9 33 36 ^s .8	92 ^s .44	5	4 15 50 ^s .91	15 58 54 ^s .7	64 ^s .24
6	2 33 11 ^s .68	9 42 50 ^s .4	92 ^s .09	6	4 18 9 ^s .56	16 5 17 ^s .6	63 ^s .40
7	2 35 16 ^s .10	9 52 1 ^s .9	91 ^s .72	7	4 20 28 ^s .55	16 11 35 ^s .5	62 ^s .55
8	2 37 20 ^s .78	10 1 11 ^s .1	91 ^s .33	8	4 22 47 ^s .86	16 17 48 ^s .2	61 ^s .68
9	2 39 25 ^s .71	10 10 17 ^s .9	90 ^s .94	9	4 25 7 ^s .51	16 23 55 ^s .7	60 ^s .81
10	2 41 30 ^s .90	10 19 22 ^s .4	90 ^s .55	10	4 27 27 ^s .50	16 29 57 ^s .9	59 ^s .93
11	2 43 36 ^s .34	10 28 24 ^s .5	90 ^s .14	11	4 29 47 ^s .82	16 35 54 ^s .8	59 ^s .03
12	2 45 42 ^s .05	10 37 24 ^s .1	89 ^s .73	12	4 32 8 ^s .47	16 41 46 ^s .3	58 ^s .12
13	2 47 48 ^s .03	10 46 21 ^s .2	89 ^s .31	13	4 34 29 ^s .46	16 47 32 ^s .3	57 ^s .20
14	2 49 54 ^s .27	10 55 15 ^s .8	88 ^s .88	14	4 36 50 ^s .78	16 53 12 ^s .7	56 ^s .27
15	2 52 0 ^s .78	11 4 7 ^s .7	88 ^s .43	15	4 39 12 ^s .43	16 58 47 ^s .5	55 ^s .33
16	2 54 7 ^s .57	11 12 56 ^s .9	87 ^s .98	16	4 41 34 ^s .42	17 4 16 ^s .7	54 ^s .38
17	2 56 14 ^s .64	11 21 43 ^s .4	87 ^s .52	17	4 43 56 ^s .73	17 9 40 ^s .1	53 ^s .42
18	2 58 21 ^s .98	11 30 27 ^s .1	87 ^s .04	18	4 46 19 ^s .38	17 14 57 ^s .7	52 ^s .44
19	3 0 29 ^s .61	11 39 7 ^s .9	86 ^s .56	19	4 48 42 ^s .36	17 20 9 ^s .4	51 ^s .46
20	3 2 37 ^s .52	11 47 45 ^s .8	86 ^s .08	20	4 51 5 ^s .66	17 25 15 ^s .2	50 ^s .47
21	3 4 45 ^s .71	11 56 20 ^s .8	85 ^s .57	21	4 53 29 ^s .29	17 30 15 ^s .0	49 ^s .47
22	3 6 54 ^s .20	12 4 52 ^s .7	85 ^s .06	22	4 55 53 ^s .24	17 35 8 ^s .8	48 ^s .45
23	3 9 2 ^s .97	12 13 21 ^s .5	84 ^s .54	23	4 58 17 ^s .52	17 39 56 ^s .4	47 ^s .42
24	3 11 12 ^s .04	N. 12 21 47 ^s .2	84 ^s .02	24	5 0 42 ^s .11	N. 17 44 37 ^s .8	46 ^s .38

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
THURSDAY 13.				SATURDAY 15.			
0	^h 5 ^m 0 ^s 42.11	N. 17 44 37.8	46.38	0	^h 7 ^m 1 ^s 43.98	N. 19 10 1.0	13.67
1	5 3 7.03	17 49 13.0	45.33	1	7 4 20.21	19 8 34.9	15.05
2	5 5 32.27	17 53 41.8	44.27	2	7 6 56.55	19 7 0.5	16.43
3	5 7 57.83	17 58 4.2	43.20	3	7 9 33.00	19 5 17.8	17.81
4	5 10 23.70	18 2 20.2	42.12	4	7 12 9.54	19 3 26.7	19.21
5	5 12 40.88	18 6 29.7	41.03	5	7 14 46.18	19 1 27.2	20.61
6	5 15 16.37	18 10 32.6	39.93	6	7 17 22.90	18 59 19.3	22.01
7	5 17 43.18	18 14 28.9	38.83	7	7 19 59.70	18 57 3.1	23.40
8	5 20 10.29	18 18 18.5	37.71	8	7 22 36.57	18 54 38.5	24.80
9	5 22 37.70	18 22 1.4	36.57	9	7 25 13.51	18 52 5.5	26.19
10	5 25 5.41	18 25 37.4	35.43	10	7 27 50.52	18 49 24.2	27.58
11	5 27 33.42	18 29 6.6	34.29	11	7 30 27.58	18 46 34.5	28.98
12	5 30 1.73	18 32 28.9	33.13	12	7 33 4.69	18 43 36.4	30.37
13	5 32 30.33	18 35 44.2	31.96	13	7 35 41.84	18 40 30.0	31.76
14	5 34 59.22	18 38 52.4	30.78	14	7 38 19.03	18 37 15.3	33.14
15	5 37 28.39	18 41 53.5	29.59	15	7 40 56.24	18 33 52.3	34.53
16	5 39 57.85	18 44 47.5	28.39	16	7 43 33.48	18 30 20.9	35.91
17	5 42 27.59	18 47 34.2	27.18	17	7 46 10.73	18 26 41.3	37.29
18	5 44 57.60	18 50 13.7	25.97	18	7 48 47.99	18 22 53.4	38.67
19	5 47 27.88	18 52 45.9	24.76	19	7 51 25.26	18 18 57.3	40.04
20	5 49 58.43	18 55 10.8	23.53	20	7 54 2.53	18 14 52.9	41.41
21	5 52 29.25	18 57 28.2	22.28	21	7 56 39.79	18 10 40.3	42.78
22	5 55 0.32	18 59 38.1	21.03	22	7 59 17.03	18 6 19.5	44.14
23	5 57 31.65	N. 19 1 40.5	19.77	23	8 1 54.25	N. 18 1 50.6	45.49
FRIDAY 14.				SUNDAY 16.			
0	6 0 3.23	N. 19 3 35.4	18.51	0	8 4 31.45	N. 17 57 13.6	46.85
1	6 2 35.06	19 5 22.7	17.24	1	8 7 8.61	17 52 28.4	48.20
2	6 5 7.13	19 7 2.3	15.96	2	8 9 45.74	17 47 35.2	49.53
3	6 7 39.44	19 8 34.2	14.67	3	8 12 22.82	17 42 34.0	50.87
4	6 10 11.98	19 9 58.4	13.38	4	8 14 59.85	17 37 24.7	52.21
5	6 12 44.75	19 11 14.8	12.08	5	8 17 36.82	17 32 7.5	53.53
6	6 15 17.75	19 12 23.4	10.77	6	8 20 13.73	17 26 42.4	54.83
7	6 17 50.96	19 13 24.1	9.46	7	8 22 50.57	17 21 9.5	56.14
8	6 20 24.39	19 14 16.9	8.14	8	8 25 27.34	17 15 28.7	57.45
9	6 22 58.03	19 15 1.8	6.81	9	8 28 4.03	17 9 40.1	58.73
10	6 25 31.87	19 15 38.7	5.48	10	8 30 40.63	17 3 43.9	60.02
11	6 28 5.91	19 16 7.6	4.15	11	8 33 17.14	16 57 39.9	61.30
12	6 30 40.14	19 16 28.5	2.81	12	8 35 53.56	16 51 28.3	62.56
13	6 33 14.56	19 16 41.3	1.45	13	8 38 29.87	16 45 9.2	63.82
14	6 35 49.17	19 16 45.9	0.09	14	8 41 6.08	16 38 42.5	65.07
15	6 38 23.95	19 16 42.4	1.26	15	8 43 42.18	16 32 8.4	66.30
16	6 40 58.90	19 16 30.8	2.62	16	8 46 18.16	16 25 26.9	67.52
17	6 43 34.02	19 16 11.0	3.98	17	8 48 54.01	16 18 38.1	68.74
18	6 46 9.30	19 15 43.0	5.36	18	8 51 29.74	16 11 42.0	69.96
19	6 48 44.73	19 15 6.7	6.74	19	8 54 5.35	16 4 38.6	71.16
20	6 51 20.31	19 14 22.1	8.11	20	8 56 40.82	15 57 28.1	72.34
21	6 53 56.03	19 13 29.3	9.49	21	8 59 16.14	15 50 10.5	73.52
22	6 56 31.88	19 12 28.2	10.88	22	9 1 51.32	15 42 45.8	74.69
23	6 59 7.87	19 11 18.8	12.27	23	9 4 26.35	15 35 14.2	75.84
24	7 1 43.98	N. 19 10 1.0	13.67	24	9 7 1.23	N. 15 27 35.7	76.98

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 17.				WEDNESDAY 19.			
0	h m s	° ' "	"	0	h m s	° ' "	"
0	9 7 1.23	N. 15 27 35.7	76.98	0	11 6 59.23	N. 7 32 50.3	114.94
1	9 9 35.95	15 19 50.4	78.11	1	11 9 23.64	7 21 19.4	115.35
2	9 12 10.51	15 11 58.3	79.23	2	11 11 47.82	7 9 46.1	115.74
3	9 14 44.91	15 3 59.6	80.34	3	11 14 11.77	6 58 10.5	116.11
4	9 17 19.14	14 55 54.2	81.44	4	11 16 35.49	6 46 32.8	116.46
5	9 19 53.19	14 47 42.3	82.52	5	11 18 58.99	6 34 53.0	116.80
6	9 22 27.07	14 39 24.0	83.58	6	11 21 22.25	6 23 11.2	117.13
7	9 25 0.77	14 30 59.3	84.63	7	11 23 45.29	6 11 27.5	117.43
8	9 27 34.29	14 22 28.4	85.68	8	11 26 8.10	5 59 42.0	117.73
9	9 30 7.62	14 13 51.2	86.71	9	11 28 30.69	5 47 54.7	118.01
10	9 32 40.76	14 5 7.9	87.73	10	11 30 53.06	5 36 5.8	118.27
11	9 35 13.71	13 56 18.5	88.73	11	11 33 15.20	5 24 15.5	118.51
12	9 37 46.46	13 47 23.2	89.71	12	11 35 37.12	5 12 23.7	118.74
13	9 40 19.01	13 38 22.0	90.68	13	11 37 58.82	5 0 30.6	118.96
14	9 42 51.36	13 29 15.1	91.63	14	11 40 20.31	4 48 36.2	119.16
15	9 45 23.51	13 20 2.5	92.58	15	11 42 41.58	4 36 40.7	119.33
16	9 47 55.45	13 10 44.2	93.51	16	11 45 2.64	4 24 44.2	119.50
17	9 50 27.18	13 1 20.4	94.42	17	11 47 23.48	4 12 46.7	119.66
18	9 52 58.70	12 51 51.2	95.31	18	11 49 44.11	4 0 48.3	119.80
19	9 55 30.01	12 42 16.7	96.19	19	11 52 4.53	3 48 49.1	119.93
20	9 58 1.11	12 32 36.9	97.06	20	11 54 24.75	3 36 49.2	120.03
21	10 0 31.98	12 22 51.9	97.92	21	11 56 44.75	3 24 48.7	120.12
22	10 3 2.64	12 13 1.8	98.76	22	11 59 4.55	3 12 47.7	120.20
23	10 5 33.07	N. 12 3 6.8	99.58	23	12 1 24.15	N. 3 0 46.3	120.27
TUESDAY 18.				THURSDAY 20.			
0	h m s	° ' "	"	0	h m s	° ' "	"
0	10 8 3.29	N. 11 53 6.9	100.38	0	12 3 43.55	N. 2 48 44.5	120.32
1	10 10 33.28	11 43 2.2	101.18	1	12 6 2.75	2 36 42.5	120.35
2	10 13 3.05	11 32 52.7	101.96	2	12 8 21.75	2 24 40.3	120.37
3	10 15 32.59	11 22 38.6	102.72	3	12 10 40.56	2 12 38.0	120.37
4	10 18 1.90	11 12 20.1	103.46	4	12 12 59.18	2 0 35.3	120.36
5	10 20 30.98	11 1 57.1	104.19	5	12 15 17.61	1 48 33.6	120.35
6	10 22 59.83	10 51 29.8	104.90	6	12 17 35.84	1 36 31.6	120.32
7	10 25 28.46	10 40 58.3	105.60	7	12 19 53.89	1 24 29.8	120.27
8	10 27 56.85	10 30 22.6	106.28	8	12 22 11.75	1 12 28.3	120.21
9	10 30 25.01	10 19 42.9	106.94	9	12 24 29.44	1 0 27.3	120.13
10	10 32 52.93	10 8 59.3	107.59	10	12 26 46.94	0 48 26.8	120.03
11	10 35 20.62	9 58 11.8	108.22	11	12 29 4.26	0 36 26.9	119.93
12	10 37 48.07	9 47 20.6	108.83	12	12 31 21.40	0 24 27.6	119.82
13	10 40 15.29	9 36 25.8	109.43	13	12 33 38.37	0 12 29.0	119.69
14	10 42 42.28	9 25 27.4	110.02	14	12 35 55.17	N. 0 0 31.3	119.55
15	10 45 9.03	9 14 25.6	110.58	15	12 38 11.80	S. 0 11 25.6	119.40
16	10 47 35.54	9 3 20.4	111.13	16	12 40 28.26	0 23 21.5	119.23
17	10 50 1.82	8 52 12.0	111.66	17	12 42 44.56	0 35 16.4	119.05
18	10 52 27.87	8 41 0.5	112.18	18	12 45 0.70	0 47 10.1	118.86
19	10 54 53.68	8 29 45.9	112.68	19	12 47 16.67	0 59 2.7	118.66
20	10 57 19.26	8 18 28.3	113.17	20	12 49 32.48	1 10 54.0	118.44
21	10 59 44.60	8 7 7.8	113.64	21	12 51 48.14	1 22 44.0	118.21
22	11 2 9.71	7 55 44.6	114.09	22	12 54 3.65	1 34 32.6	117.98
23	11 4 34.59	7 44 18.7	114.53	23	12 56 19.00	1 46 19.7	117.73
24	11 6 59.23	N. 7 32 50.3	114.94	24	12 58 34.21	S. 1 58 5.3	117.47

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10."	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10."
FRIDAY 21.				SUNDAY 23.			
0	h m s 12 58 34.21	S. 1° 58' 5".3	117.47	0	h m s 14 44 32.37	S. 10° 32' 21".1	93.48
1	13 0 49.27	2 9 49.3	117.19	1	14 46 42.92	10 41 39.9	92.78
2	13 3 4.19	2 21 31.6	116.90	2	14 48 53.43	10 50 54.5	92.08
3	13 5 18.96	2 33 12.1	116.60	3	14 51 3.89	11 0 4.9	91.38
4	13 7 33.60	2 44 50.8	116.29	4	14 53 14.30	11 9 11.1	90.68
5	13 9 48.09	2 56 27.6	115.98	5	14 55 24.66	11 18 13.1	89.97
6	13 12 2.45	3 8 2.5	115.65	6	14 57 34.99	11 27 10.7	89.24
7	13 14 16.68	3 19 35.4	115.30	7	14 59 45.27	11 36 4.0	88.51
8	13 16 30.78	3 31 6.1	114.95	8	15 1 55.52	11 44 52.9	87.78
9	13 18 44.75	3 42 34.8	114.59	9	15 4 5.72	11 53 37.4	87.05
10	13 20 58.59	3 54 1.2	114.22	10	15 6 15.89	12 2 17.5	86.31
11	13 23 12.31	4 5 25.4	113.84	11	15 8 26.02	12 10 53.1	85.56
12	13 25 25.90	4 16 47.3	113.45	12	15 10 36.12	12 19 24.2	84.81
13	13 27 39.38	4 28 6.8	113.04	13	15 12 46.18	12 27 50.8	84.05
14	13 29 52.74	4 39 23.8	112.62	14	15 14 56.21	12 36 12.8	83.29
15	13 32 5.98	4 50 38.3	112.20	15	15 17 6.21	12 44 30.3	82.52
16	13 34 19.11	5 1 50.2	111.77	16	15 19 16.18	12 52 43.1	81.74
17	13 36 32.14	5 12 59.5	111.33	17	15 21 26.12	13 0 51.2	80.96
18	13 38 45.05	5 24 6.1	110.88	18	15 23 36.03	13 8 54.7	80.19
19	13 40 57.86	5 35 10.0	110.42	19	15 25 45.91	13 16 53.5	79.41
20	13 43 10.56	5 46 11.1	109.94	20	15 27 55.77	13 24 47.6	78.62
21	13 45 23.17	5 57 9.3	109.46	21	15 30 5.60	13 32 36.9	77.82
22	13 47 35.67	6 8 4.6	108.97	22	15 32 15.40	13 40 21.4	77.02
23	13 49 48.07	S. 6 18 57.0	108.48	23	15 34 25.18	S. 13 48 1.1	76.21
SATURDAY 22.				MONDAY 24.			
0	13 52 0.38	S. 6 29 46.3	107.97	0	15 36 34.93	S. 13 55 35.9	75.40
1	13 54 12.60	6 40 32.6	107.46	1	15 38 44.66	14 3 5.9	74.59
2	13 56 24.72	6 51 15.8	106.93	2	15 40 54.37	14 10 31.0	73.78
3	13 58 36.75	7 1 55.8	106.40	3	15 43 4.06	14 17 51.2	72.96
4	14 0 48.70	7 12 32.6	105.86	4	15 45 13.72	14 25 6.5	72.13
5	14 3 0.57	7 23 6.1	105.31	5	15 47 23.37	14 32 16.8	71.30
6	14 5 12.35	7 33 36.3	104.75	6	15 49 32.99	14 39 22.1	70.47
7	14 7 24.05	7 44 3.1	104.18	7	15 51 42.60	14 46 22.4	69.63
8	14 9 35.67	7 54 26.5	103.61	8	15 53 52.19	14 53 17.7	68.80
9	14 11 47.21	8 4 46.5	103.03	9	15 56 1.75	15 0 8.0	67.96
10	14 13 58.68	8 15 2.9	102.44	10	15 58 11.30	15 6 53.2	67.11
11	14 16 10.07	8 25 15.8	101.85	11	16 0 20.84	15 13 33.3	66.25
12	14 18 21.40	8 35 25.1	101.25	12	16 2 30.35	15 20 8.2	65.40
13	14 20 32.66	8 45 30.8	100.64	13	16 4 39.85	15 26 38.1	64.55
14	14 22 43.84	8 55 32.8	100.02	14	16 6 49.33	15 33 2.8	63.68
15	14 24 54.96	9 5 31.0	99.39	15	16 8 58.79	15 39 22.3	62.82
16	14 27 6.02	9 15 25.5	98.76	16	16 11 8.24	15 45 36.7	61.96
17	14 29 17.02	9 25 16.2	98.13	17	16 13 17.67	15 51 45.8	61.09
18	14 31 27.96	9 35 3.1	97.49	18	16 15 27.08	15 57 49.8	60.22
19	14 33 38.83	9 44 46.1	96.83	19	16 17 36.48	16 3 48.5	59.34
20	14 35 49.65	9 54 25.1	96.17	20	16 19 45.86	16 9 41.9	58.47
21	14 38 0.41	10 4 0.1	95.51	21	16 21 55.23	16 15 30.1	57.59
22	14 40 11.12	10 13 31.2	94.84	22	16 24 4.58	16 21 13.0	56.71
23	14 42 21.77	10 22 58.2	94.16	23	16 26 13.92	16 26 50.6	55.83
24	14 44 32.37	S. 10 32 21.1	93.48	24	16 28 23.24	S. 16 32 22.9	54.94

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 25.				THURSDAY 27.			
0	^h 16 ^m 28 ^s 23.24	S. 16° 32' 22.9"	54.94	0	^h 18 ^m 11 ^s 23.63	S. 19° 10' 42.0"	10.70
1	16 30 32.55	16 37 49.9	54.05	1	18 13 31.53	19 11 43.4	9.77
2	16 32 41.84	16 43 11.5	53.15	2	18 15 39.37	19 12 39.2	8.84
3	16 34 51.11	16 48 27.7	52.26	3	18 17 47.16	19 13 29.5	7.91
4	16 37 0.37	16 53 38.6	51.37	4	18 19 54.90	19 14 14.2	6.98
5	16 39 9.62	16 58 44.1	50.47	5	18 22 2.58	19 14 53.3	6.06
6	16 41 18.84	17 3 44.2	49.57	6	18 24 10.21	19 15 26.9	5.13
7	16 43 28.05	17 8 38.9	48.66	7	18 26 17.78	19 15 54.9	4.21
8	16 45 37.24	17 13 28.1	47.76	8	18 28 25.29	19 16 17.4	3.29
9	16 47 46.41	17 18 12.0	46.86	9	18 30 32.74	19 16 34.4	2.37
10	16 49 55.57	17 22 50.4	45.94	10	18 32 40.14	19 16 45.8	1.44
11	16 52 4.70	17 27 23.3	45.03	11	18 34 47.47	19 16 51.7	0.52
12	16 54 13.81	17 31 50.7	44.12	12	18 36 54.73	19 16 52.1	0.39
13	16 56 22.90	17 36 12.7	43.21	13	18 39 1.93	19 16 47.0	1.31
14	16 58 31.98	17 40 29.2	42.28	14	18 41 9.07	19 16 36.4	2.23
15	17 0 41.03	17 44 40.1	41.37	15	18 43 16.14	19 16 20.3	3.14
16	17 2 50.06	17 48 45.6	40.46	16	18 45 23.15	19 15 58.7	4.06
17	17 4 59.07	17 52 45.6	39.53	17	18 47 30.08	19 15 31.6	4.97
18	17 7 8.06	17 56 40.0	38.61	18	18 49 36.95	19 14 59.1	5.88
19	17 9 17.03	18 0 28.9	37.69	19	18 51 43.74	19 14 21.1	6.78
20	17 11 25.97	18 4 12.3	36.77	20	18 53 50.47	19 13 37.7	7.68
21	17 13 34.89	18 7 50.1	35.84	21	18 55 57.12	19 12 48.9	8.58
22	17 15 43.79	18 11 22.4	34.92	22	18 58 3.69	19 11 54.7	9.49
23	17 17 52.66	S. 18° 14' 49.2"	33.99	23	19 0 10.19	S. 19° 10' 55.0"	10.39
WEDNESDAY 26.				FRIDAY 28.			
0	17 20 1.50	S. 18° 18' 10.3"	33.06	0	19 2 16.61	S. 19° 9' 50.0"	11.28
1	17 22 10.32	18 21 25.9	32.13	1	19 4 22.96	19 8 39.6	12.18
2	17 24 19.10	18 24 35.9	31.21	2	19 6 29.23	19 7 23.8	13.08
3	17 26 27.86	18 27 40.4	30.28	3	19 8 35.41	19 6 2.7	13.97
4	17 28 36.59	18 30 39.2	29.34	4	19 10 41.52	19 4 36.2	14.86
5	17 30 45.29	18 33 32.5	28.42	5	19 12 47.55	19 3 4.4	15.74
6	17 32 53.96	18 36 20.3	27.49	6	19 14 53.49	19 1 27.3	16.63
7	17 35 2.60	18 39 2.4	26.55	7	19 16 59.35	18 59 44.9	17.51
8	17 37 11.21	18 41 38.9	25.62	8	19 19 5.12	18 57 57.2	18.38
9	17 39 19.78	18 44 9.8	24.69	9	19 21 10.80	18 56 4.3	19.26
10	17 41 28.31	18 46 35.2	23.76	10	19 23 16.40	18 54 6.1	20.14
11	17 43 36.81	18 48 54.9	22.83	11	19 25 21.91	18 52 2.6	21.01
12	17 45 45.28	18 51 9.1	21.89	12	19 27 27.34	18 49 54.0	21.88
13	17 47 53.71	18 53 17.6	20.96	13	19 29 32.67	18 47 40.1	22.75
14	17 50 2.10	18 55 20.6	20.02	14	19 31 37.91	18 45 21.0	23.61
15	17 52 10.44	18 57 17.9	19.08	15	19 33 43.06	18 42 56.8	24.47
16	17 54 18.75	18 59 9.6	18.16	16	19 35 48.12	18 40 27.4	25.33
17	17 56 27.02	19 0 55.8	17.22	17	19 37 53.08	18 37 52.9	26.18
18	17 58 35.24	19 2 36.3	16.28	18	19 39 57.95	18 35 13.2	27.03
19	18 0 43.42	19 4 11.2	15.36	19	19 42 2.72	18 32 28.5	27.88
20	18 2 51.55	19 5 40.6	14.43	20	19 44 7.39	18 29 38.6	28.73
21	18 4 59.64	19 7 4.3	13.49	21	19 46 11.97	18 26 43.7	29.57
22	18 7 7.69	19 8 22.5	12.56	22	19 48 16.45	18 23 43.8	30.41
23	18 9 15.68	19 9 35.0	11.63	23	19 50 20.84	18 20 38.8	31.24
24	18 11 23.63	S. 19° 10' 42.0"	10.70	24	19 52 25.12	S. 18° 17' 28.9"	32.07

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
SATURDAY 29.				MONDAY 31.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	19 52 25.12	S. 18 17 28.9	32.07	0	21 29 45.03	S. 14 14 58.0	67.30
1	19 54 29.30	18 14 14.0	32.90	1	21 31 44.03	14 8 12.3	67.92
2	19 56 33.38	18 10 54.1	33.73	2	21 33 42.93	14 1 22.9	68.54
3	19 58 37.36	18 7 29.3	34.55	3	21 35 41.72	13 54 29.8	69.15
4	20 0 41.24	18 3 59.5	35.37	4	21 37 40.41	13 47 33.1	69.75
5	20 2 45.02	18 0 24.8	36.18	5	21 39 39.00	13 40 32.8	70.36
6	20 4 48.69	17 56 45.3	36.99	6	21 41 37.48	13 33 28.8	70.96
7	20 6 52.26	17 53 0.9	37.80	7	21 43 35.87	13 26 21.3	71.54
8	20 8 55.72	17 49 11.7	38.61	8	21 45 34.15	13 19 10.3	72.12
9	20 10 59.08	17 45 17.6	39.41	9	21 47 32.33	13 11 55.9	72.70
10	20 13 2.33	17 41 18.8	40.21	10	21 49 30.42	13 4 37.9	73.28
11	20 15 5.47	17 37 15.2	41.00	11	21 51 28.40	12 57 16.5	73.84
12	20 17 8.51	17 33 6.8	41.79	12	21 53 26.29	12 49 51.8	74.40
13	20 19 11.44	17 28 53.7	42.57	13	21 55 24.08	12 42 23.7	74.96
14	20 21 14.27	17 24 35.9	43.35	14	21 57 21.78	12 34 52.2	75.52
15	20 23 16.98	17 20 13.5	44.13	15	21 59 19.38	12 27 17.4	76.06
16	20 25 19.59	17 15 46.4	44.91	16	22 1 16.89	12 19 39.4	76.60
17	20 27 22.09	17 11 14.6	45.67	17	22 3 14.30	12 11 58.2	77.14
18	20 29 24.48	17 6 38.3	46.43	18	22 5 11.62	12 4 13.7	77.67
19	20 31 26.76	17 1 57.4	47.20	19	22 7 8.85	11 56 26.1	78.19
20	20 33 28.93	16 57 11.9	47.96	20	22 9 6.00	11 48 35.4	78.71
21	20 35 31.00	16 52 21.9	48.71	21	22 11 3.05	11 40 41.5	79.23
22	20 37 32.95	16 47 27.4	49.45	22	22 13 0.01	11 32 44.6	79.73
23	20 39 34.79	S. 16 42 28.5	50.20	23	22 14 56.89	S. 11 24 44.7	80.23

SUNDAY 30.**TUESDAY, SEPT. 1.**

0	20 41 36.53	S. 16 37 25.0	50.95
1	20 43 38.15	16 32 17.1	51.68
2	20 45 39.67	16 27 4.8	52.41
3	20 47 41.07	16 21 48.2	53.13
4	20 49 42.36	16 16 27.2	53.86
5	20 51 43.54	16 11 1.9	54.58
6	20 53 44.61	16 5 32.3	55.29
7	20 55 45.56	15 59 58.4	56.00
8	20 57 46.41	15 54 20.3	56.70
9	20 59 47.15	15 48 38.0	57.40
10	21 1 47.77	15 42 51.5	58.09
11	21 3 48.29	15 37 0.9	58.78
12	21 5 48.69	15 31 6.1	59.47
13	21 7 48.98	15 25 7.2	60.15
14	21 9 49.17	15 19 4.3	60.82
15	21 11 49.24	15 12 57.4	61.49
16	21 13 49.20	15 6 46.4	62.16
17	21 15 49.06	15 0 31.5	62.82
18	21 17 48.81	14 54 12.6	63.48
19	21 19 48.45	14 47 49.8	64.13
20	21 21 47.98	14 41 23.1	64.78
21	21 23 47.40	14 34 52.5	65.42
22	21 25 46.71	14 28 18.1	66.05
23	21 27 45.92	14 21 39.9	66.68
24	21 29 45.03	S. 14 14 58.0	67.30

PHASES OF THE MOON.

		^h ^m
Aug. 2	○ Full Moon	- 23 51.9
11	☾ Last Quarter	- 0 28.2
17	● New Moon	- 17 11.5
24	☽ First Quarter	- 12 46.8

		^h
Aug. 3	☾ Apogee	- - - 11
17	☾ Perigee	- - - 11
30	☾ Apogee	- - - 15

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^b .	P.L. of diff.	VI ^b .	P.L. of diff.	IX ^b .	P.L. of diff.
1	Spica W.	85° 49' 15"	3059	87° 18' 15"	3063	88° 47' 10"	3065	90° 16' 2"	3069
	Saturn W.	48° 36' 29"	3043	50° 5' 48"	3047	51° 35' 3"	3050	53° 4' 14"	3052
	Antares W.	40° 29' 55"	3178	41° 56' 30"	3174	43° 23' 10"	3170	44° 49' 55"	3166
	Fomalhaut E.	49° 46' 21"	3555	48° 26' 57"	3584	47° 8' 5"	3614	45° 49' 45"	3647
	α Pegasi E.	64° 23' 3"	3433	63° 1' 24"	3447	61° 40' 1"	3462	60° 18' 55"	3479
	Jupiter E.	86° 37' 19"	3038	85° 7' 53"	3041	83° 38' 31"	3044	82° 9' 13"	3047
2	Saturn W.	60° 29' 23"	3064	61° 58' 17"	3066	63° 27' 8"	3068	64° 55' 57"	3069
	Antares W.	52° 4' 37"	3154	53° 31' 41"	3152	54° 58' 48"	3151	56° 25' 56"	3149
	α Pegasi E.	53° 38' 14"	3575	52° 19' 12"	3598	51° 0' 36"	3623	49° 42' 26"	3650
	Jupiter E.	74° 43' 35"	3060	73° 14' 36"	3061	71° 45' 39"	3064	70° 16' 45"	3065
	α Arietis E.	95° 43' 41"	3204	94° 17' 36"	3206	92° 51' 34"	3207	91° 25' 33"	3209
3	Saturn W.	72° 19' 38"	3075	73° 48' 18"	3075	75° 16' 58"	3076	76° 45' 37"	3077
	Antares W.	63° 42' 0"	3143	65° 9' 17"	3143	66° 36' 35"	3141	68° 3' 55"	3140
	α Pegasi E.	43° 19' 47"	3226	42° 5' 12"	3271	40° 51' 23"	3292	39° 38' 26"	3298
	Jupiter E.	62° 52' 40"	3071	61° 23' 55"	3072	59° 55' 11"	3072	58° 26' 27"	3073
	α Arietis E.	84° 15' 58"	3217	82° 50' 9"	3219	81° 24' 22"	3220	79° 58' 37"	3222
4	Saturn W.	84° 8' 49"	3075	85° 37' 29"	3075	87° 6' 9"	3074	88° 34' 50"	3073
	Antares W.	75° 20' 56"	3134	76° 48' 25"	3133	78° 15' 55"	3130	79° 43' 28"	3129
	Jupiter E.	51° 2' 53"	3072	49° 34' 9"	3072	48° 5' 25"	3071	46° 36' 40"	3069
	α Arietis E.	72° 50' 24"	3231	71° 24' 52"	3234	69° 59' 23"	3237	68° 33' 57"	3239
	Aldebaran E.	104° 41' 43"	3067	103° 12' 53"	3066	101° 44' 2'	3065	100° 15' 10"	3064
	Mars E.	120° 13' 49"	3339	118° 50' 23"	3339	117° 26' 57"	3337	116° 3' 28"	3335
5	Saturn W.	95° 58' 39"	3065	97° 27' 31"	3063	98° 56' 26"	3061	100° 25' 23"	3058
	Antares W.	87° 1' 44"	3119	88° 29' 31"	3117	89° 57' 20"	3114	91° 25' 13"	3111
	Jupiter E.	39° 12' 35"	3064	37° 43' 41"	3062	36° 14' 45"	3060	34° 45' 46"	3058
	α Arietis E.	61° 27' 34"	3254	60° 2' 28"	3258	58° 37' 27"	3261	57° 12' 30"	3266
	Aldebaran E.	92° 50' 26"	3056	91° 21' 23"	3053	89° 52' 16"	3051	88° 23' 7"	3049
	Mars E.	109° 5' 32"	3325	107° 41' 49"	3321	106° 18' 2"	3319	104° 54' 13"	3315
6	Saturn W.	107° 51' 3"	3043	109° 20' 23"	3039	110° 49' 48"	3035	112° 19' 18"	3030
	α Aquilæ W.	54° 38' 3"	3815	55° 52' 50"	3783	57° 8' 10"	3754	58° 24' 0"	3726
	α Arietis E.	50° 9' 19"	3296	48° 45' 3"	3305	47° 20' 57"	3314	45° 57' 2"	3325
	Aldebaran E.	80° 56' 25"	3031	79° 26' 51"	3028	77° 57' 13"	3023	76° 27' 29"	3018
	Mars E.	97° 54' 4"	3296	96° 29' 48"	3292	95° 5' 27"	3287	93° 41' 0"	3282
	Venus E.	118° 43' 43"	3031	117° 14' 8"	3028	115° 44' 30"	3025	114° 14' 48"	3022
7	α Aquilæ W.	64° 50' 4"	3608	66° 8' 30"	3586	67° 27' 20"	3567	68° 46' 30"	3548
	Fomalhaut W.	31° 50' 2"	4197	32° 58' 31"	4096	34° 8' 37"	4005	35° 20' 12"	3923
	Aldebaran E.	68° 57' 16"	2991	67° 26' 52"	2985	65° 56' 20"	2979	64° 25' 41"	2971
	Mars E.	86° 37' 14"	3253	85° 12' 7"	3247	83° 46' 53"	3239	82° 21' 30"	3232
	Venus E.	106° 45' 16"	3003	105° 15' 7"	2998	103° 44' 52"	2993	102° 14' 30"	2988
	SUN E.	136° 16' 50"	3352	134° 53' 38"	3345	133° 30' 18"	3338	132° 6' 50"	3330
8	α Aquilæ W.	75° 27' 20"	3463	76° 48' 25"	3448	78° 9' 47"	3432	79° 31' 27"	3419
	Fomalhaut W.	41° 36' 20"	3618	42° 54' 35"	3570	44° 13' 42"	3526	45° 33' 37"	3486
	Aldebaran E.	56° 50' 4"	2933	55° 18' 27"	2924	53° 46' 39"	2914	52° 14' 38"	2905
	Mars E.	75° 12' 21"	3191	73° 46' 1"	3183	72° 19' 31"	3173	70° 52' 49"	3163
	Venus E.	94° 40' 56"	2957	93° 9' 49"	2950	91° 38' 33"	2942	90° 7' 7"	2935
	SUN E.	125° 7' 10"	3287	123° 42' 44"	3277	122° 18' 6"	3268	120° 53' 17"	3258

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
1	Spica W.	91 44 50	3072	93 13 34	3074	94 42 15	3077	96 10 52	3080
	Saturn W.	54 33 22	3055	56 2 26	3057	57 31 28	3060	59 0 27	3062
	Antares W.	46 16 45	3163	47 43 38	3160	49 10 35	3158	50 37 35	3156
	Fomalhaut E.	44 32 1	3682	43 14 54	3722	41 58 30	3765	40 42 51	3811
	α Pegasi E.	58 58 7	3496	57 37 38	3513	56 17 28	3532	54 57 40	3553
	Jupiter E.	80 39 59	3050	79 10 48	3053	77 41 41	3056	76 12 37	3057
2	Saturn W.	66 24 44	3070	67 53 30	3072	69 22 14	3073	70 50 56	3074
	Antares W.	57 53 6	3148	59 20 17	3147	60 47 30	3146	62 14 44	3144
	α Pegasi E.	48 24 46	3679	47 7 37	3712	45 51 3	3747	44 35 5	3785
	Jupiter E.	68 47 53	3067	67 19 3	3068	65 50 14	3069	64 21 26	3070
	α Arietis E.	89 59 35	3210	88 33 37	3212	87 7 42	3214	85 41 49	3215
3	Saturn W.	78 14 15	3076	79 42 54	3077	81 11 32	3077	82 40 10	3076
	Antares W.	69 31 16	3138	70 58 39	3138	72 26 3	3136	73 53 29	3135
	α Pegasi E.	38 26 25	4040	37 15 25	4109	36 5 32	4186	34 56 53	4273
	Jupiter E.	56 57 44	3073	55 29 1	3073	54 0 19	3073	52 31 36	3073
	α Arietis E.	78 32 54	3224	77 7 13	3225	75 41 34	3228	74 15 58	3230
4	Saturn W.	90 3 33	3072	91 32 17	3071	93 1 2	3069	94 29 50	3068
	Antares W.	81 11 3	3127	82 38 40	3125	84 6 19	3124	85 34 0	3121
	Jupiter E.	45 7 53	3069	43 39 6	3068	42 10 17	3067	40 41 27	3065
	α Arietis E.	67 8 34	3241	65 43 13	3245	64 17 57	3247	62 52 43	3251
	Aldebaran E.	98 46 17	3063	97 17 22	3062	95 48 26	3060	94 19 27	3058
	Mars E.	114 39 57	3333	113 16 24	3332	111 52 50	3329	110 29 12	3327
5	Saturn W.	101 54 24	3056	103 23 28	3053	104 52 35	3049	106 21 47	3046
	Antares W.	92 53 9	3109	94 21 8	3106	95 49 10	3102	97 17 17	3099
	Jupiter E.	33 16 45	3056	31 47 42	3054	30 18 36	3052	28 49 28	3050
	α Arietis E.	55 47 39	3271	54 22 54	3276	52 58 15	3282	51 33 43	3289
	Aldebaran E.	86 53 55	3045	85 24 38	3043	83 55 18	3039	82 25 54	3035
	Mars E.	103 30 19	3312	102 6 22	3308	100 42 20	3305	99 18 14	3301
6	Saturn W.	113 48 54	3026	115 18 35	3020	116 48 23	3016	118 18 16	3010
	α Aquilæ W.	59 40 19	3699	60 57 7	3675	62 14 21	3651	63 32 0	3628
	α Arietis E.	44 33 19	3337	43 9 50	3350	41 46 36	3365	40 23 40	3382
	Aldebaran E.	74 57 39	3014	73 27 43	3009	71 57 41	3003	70 27 32	2997
	Mars E.	92 16 28	3277	90 51 50	3271	89 27 5	3265	88 2 13	3259
	Venus E.	112 45 3	3018	111 15 13	3015	109 45 19	3011	108 15 20	3007
7	α Aquilæ W.	70 6 1	3529	71 25 53	3513	72 46 3	3496	74 6 32	3479
	Fomalhaut W.	36 33 8	3850	37 47 18	3784	39 2 37	3722	40 18 59	3668
	Aldebaran E.	62 54 52	2965	61 23 55	2957	59 52 48	2949	58 21 31	2941
	Mars E.	80 55 59	3225	79 30 19	3216	78 4 29	3209	76 38 30	3200
	Venus E.	100 44 2	2982	99 13 27	2976	97 42 44	2970	96 11 54	2964
	SUN E.	130 43 13	3222	129 19 27	3213	127 55 31	3205	126 31 26	3206
8	α Aquilæ W.	80 53 22	3404	82 15 34	3391	83 38 1	3377	85 0 44	3364
	Fomalhaut W.	46 54 17	3447	48 15 40	3411	49 37 44	3378	51 0 26	3345
	Aldebaran E.	50 42 26	2896	49 10 2	2885	47 37 24	2876	46 4 34	2865
	Mars E.	69 25 55	3153	67 58 50	3142	66 31 31	3132	65 4 0	3121
	Venus E.	88 35 32	2926	87 3 46	2918	85 31 50	2909	83 59 42	2900
	SUN E.	119 28 16	3247	118 3 2	3236	116 37 36	3225	115 11 56	3213

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
9	Fomalhaut W.	52 23 45	3314	53 47 40	3285	55 12 9	3257	56 37 11	3230
	α Pegasi W.	39 11 23	3728	40 27 41	3662	41 45 9	3601	43 3 42	3545
	Aldebaran E.	44 31 30	2853	42 58 11	2842	41 24 38	2831	39 50 50	2818
	Mars E.	63 36 16	3110	62 8 18	3098	60 40 6	3087	59 11 40	3074
	Venus E.	82 27 23	2890	80 54 52	2880	79 22 8	2870	77 49 11	2860
	SUN E.	113 46 2	3201	112 19 54	3189	110 53 31	3177	109 26 54	3163
10	Fomalhaut W.	63 50 4	3106	65 18 6	3083	66 46 36	3061	68 15 33	3039
	α Pegasi W.	49 50 40	3315	51 14 34	3277	52 39 13	3240	54 4 35	3205
	Jupiter W.	21 56 34	2772	23 31 38	2754	25 7 6	2738	26 42 55	2721
	Mars E.	51 45 36	3009	50 15 34	2995	48 45 15	2981	47 14 39	2968
	Venus E.	70 0 57	2802	68 26 32	2791	66 51 52	2778	65 16 55	2764
	SUN E.	102 9 41	3093	100 41 23	3078	99 12 46	3062	97 43 50	3047
11	Fomalhaut W.	75 46 58	2935	77 18 33	2915	78 50 33	2895	80 22 58	2876
	α Pegasi W.	61 21 20	3049	62 50 32	3021	64 20 19	2994	65 50 39	2967
	Jupiter W.	34 47 39	2637	36 25 43	2620	38 4 11	2602	39 43 3	2585
	Mars E.	39 37 10	2896	38 4 46	2881	36 32 3	2866	34 59 1	2853
	Venus E.	57 17 45	2696	55 41 0	2681	54 3 55	2666	52 26 30	2652
	SUN E.	90 14 14	2964	88 43 16	2947	87 11 56	2930	85 40 15	2911
12	α Pegasi W.	73 30 26	2845	75 3 56	2821	76 37 56	2799	78 12 25	2778
	Jupiter W.	48 3 19	2497	49 44 36	2480	51 26 17	2462	53 8 24	2443
	α Arietis W.	30 16 57	3124	31 44 37	3051	33 13 46	2984	34 44 19	2924
	Venus E.	44 14 20	2575	42 34 51	2560	40 55 1	2544	39 14 49	2528
	SUN E.	77 56 0	2819	76 21 57	2801	74 47 31	2782	73 12 40	2763
13	α Pegasi W.	86 11 42	2677	87 48 52	2660	89 26 26	2642	91 4 24	2624
	Jupiter W.	61 45 23	2355	63 30 3	2336	65 15 10	2319	67 0 42	2301
	α Arietis W.	42 34 17	2689	44 11 11	2651	45 48 57	2616	47 27 30	2583
	SUN E.	65 12 8	2669	63 34 46	2649	61 56 58	2631	60 18 45	2613
14	Jupiter W.	75 54 46	2216	77 42 50	2200	79 31 18	2184	81 20 9	2168
	α Arietis W.	55 51 1	2440	57 33 39	2415	59 16 52	2392	61 0 38	2369
	Aldebaran W.	22 0 26	2224	23 48 18	2207	25 36 35	2192	27 25 15	2176
	SUN E.	52 1 24	2522	50 20 42	2505	48 39 36	2488	46 58 6	2471
15	α Arietis W.	69 47 8	2272	71 33 48	2256	73 20 52	2241	75 8 19	2226
	Aldebaran W.	36 34 17	2104	38 25 10	2092	40 16 22	2079	42 7 54	2068
	SUN E.	38 24 56	2396	36 41 15	2381	34 57 13	2368	33 12 52	2356
20	SUN W.	32 10 28	2423	33 53 30	2438	35 36 10	2455	37 18 27	2471
	Saturn E.	59 31 55	2149	57 42 11	2164	55 52 49	2180	54 3 51	2196
	Antares E.	68 32 50	2203	66 44 27	2220	64 56 29	2237	63 8 58	2256
21	SUN W.	45 43 51	2560	47 23 41	2579	49 3 5	2598	50 42 3	2617
	Saturn E.	45 5 17	2283	43 18 53	2302	41 32 56	2321	39 47 27	2340
	Antares E.	54 18 18	2356	52 33 40	2378	50 49 34	2402	49 6 2	2425
	α Aquilæ E.	101 36 58	2774	100 1 56	2787	98 27 11	2799	96 52 42	2814
22	SUN W.	58 50 18	2716	60 26 37	2736	62 2 29	2755	63 37 56	2775
	Antares E.	40 37 10	2560	38 57 20	2590	37 18 11	2623	35 39 47	2657
	α Aquilæ E.	89 5 20	2899	87 33 0	2920	86 1 6	2939	84 29 37	2960
23	SUN W.	71 28 38	2874	73 1 30	2894	74 33 57	2913	76 5 59	2931

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
9	Fomalhaut W.	58 2 45	3204	59 28 50	3178	60 55 25	3153	62 22 30	3129
	α Pegasi W.	44 23 16	3493	45 43 48	3444	47 5 15	3399	48 27 33	3356
	Aldebaran E.	38 16 46	2806	36 42 26	2793	35 7 49	2781	33 32 56	2767
	Mars E.	57 42 58	3061	56 14 1	3049	54 44 49	3035	53 15 20	3023
	Venus E.	76 16 1	2849	74 42 37	2838	73 8 58	2827	71 35 5	2815
	SUN E.	108 0 0	3150	106 32 51	3136	105 5 25	3122	103 37 42	3107
10	Fomalhaut W.	69 44 58	3017	71 14 49	2997	72 45 6	2976	74 15 49	2955
	α Pegasi W.	55 30 39	3172	56 57 22	3139	58 24 44	3108	59 52 44	3078
	Jupiter W.	28 19 7	2704	29 55 41	2687	31 32 38	2671	33 9 57	2654
	Mars E.	45 43 46	2953	44 12 34	2939	42 41 4	2925	41 9 17	2910
	Venus E.	63 41 40	2752	62 6 9	2738	60 30 19	2724	58 54 11	2710
	SUN E.	96 14 35	3031	94 45 1	3014	93 15 6	2997	91 44 50	2981
11	Fomalhaut W.	81 55 47	2857	83 29 1	2838	85 2 40	2820	86 36 42	2802
	α Pegasi W.	67 21 33	2942	68 52 59	2916	70 24 57	2892	71 57 27	2869
	Jupiter W.	41 22 18	2569	43 1 56	2551	44 41 59	2532	46 22 27	2515
	Mars E.	33 25 42	2839	31 52 5	2826	30 18 11	2813	28 44 0	2801
	Venus E.	50 48 45	2637	49 10 40	2622	47 32 15	2606	45 53 28	2590
	SUN E.	84 8 10	2894	82 35 43	2875	81 2 52	2857	79 29 38	2838
12	α Pegasi W.	79 47 22	2757	81 22 47	2736	82 58 39	2716	84 34 57	2696
	Jupiter W.	54 50 57	2426	56 33 55	2408	58 17 18	2389	60 1 8	2372
	α Arietis W.	36 16 8	2869	37 49 7	2818	39 23 11	2772	40 58 15	2729
	Venus E.	37 34 15	2513	35 53 20	2498	34 12 4	2483	32 30 27	2467
	SUN E.	71 37 24	2744	70 1 43	2725	68 25 36	2707	66 49 5	2687
13	α Pegasi W.	92 42 46	2608	94 21 30	2593	96 0 35	2578	97 40 0	2564
	Jupiter W.	68 46 40	2283	70 33 4	2266	72 19 53	2249	74 7 7	2233
	α Arietis W.	49 6 49	2551	50 46 52	2521	52 27 36	2493	54 8 59	2466
	SUN E.	58 40 7	2594	57 1 4	2575	55 21 35	2558	53 41 42	2540
14	Jupiter W.	83 9 25	2153	84 59 3	2138	86 49 4	2124	88 39 27	2110
	α Arietis W.	62 44 57	2348	64 29 46	2327	66 15 6	2308	68 0 53	2289
	Aldebaran W.	29 14 19	2161	31 3 46	2146	32 53 35	2132	34 43 46	2118
	SUN E.	45 16 12	2455	43 33 56	2440	41 51 18	2424	40 8 18	2409
15	α Arietis W.	76 56 8	2212	78 44 18	2199	80 32 47	2188	82 21 33	2177
	Aldebaran W.	43 59 43	2056	45 51 50	2045	47 44 14	2035	49 36 53	2026
	SUN E.	31 28 14	2343	29 43 17	2332	27 58 4	2322	26 12 36	2311
20	SUN W.	39 0 21	2489	40 41 50	2506	42 22 55	2523	44 3 36	2542
	Saturn E.	52 15 17	2213	50 27 9	2229	48 39 25	2247	46 52 8	2265
	Antares E.	61 21 53	2274	59 35 15	2293	57 49 6	2314	56 3 27	2335
21	SUN W.	52 20 35	2638	53 58 41	2657	55 36 19	2675	57 13 32	2695
	Saturn E.	38 2 26	2360	36 17 54	2380	34 33 51	2402	32 50 19	2422
	Antares E.	47 23 3	2450	45 40 39	2476	43 58 52	2502	42 17 42	2530
	α Aquilæ E.	95 18 32	2828	93 44 41	2845	92 11 12	2862	90 38 4	2880
22	SUN W.	65 12 56	2795	66 47 30	2815	68 21 38	2835	69 55 21	2855
	Antares E.	34 2 9	2694	32 25 21	2733	30 49 25	2776	29 14 26	2822
	α Aquilæ E.	82 58 36	2983	81 28 2	3006	79 57 57	3030	78 28 21	3055
23	SUN W.	77 37 38	2951	79 8 52	2970	80 39 43	2988	82 10 11	3006

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
23	Spica W.	21 12 21	2753	22 47 50	2745	24 23 30	2741	25 59 15	2744
	α Aquilæ E.	76 59 16	3080	75 30 42	3105	74 2 39	3133	72 35 9	3162
24	SUN W.	83 40 17	3024	85 10 0	3041	86 39 22	3059	88 8 22	3075
	Spica W.	33 56 53	2774	35 31 55	2783	37 6 45	2794	38 41 21	2804
	α Aquilæ E.	65 26 16	3313	64 2 19	3346	62 39 1	3380	61 16 22	3417
	Fomalhaut E.	98 15 49	2977	96 45 7	2991	95 14 43	3005	93 44 36	3020
25	SUN W.	95 28 22	3155	96 55 25	3170	98 22 10	3183	99 48 39	3198
	Spica W.	46 30 49	2860	48 3 59	2871	49 36 55	2883	51 9 36	2893
	α Aquilæ E.	54 33 58	3624	53 15 50	3672	51 58 33	3723	50 42 10	3776
	Fomalhaut E.	86 18 37	3095	84 50 21	3109	83 22 22	3124	81 54 41	3139
	α Pegasi E.	101 3 28	3138	99 36 4	3148	98 8 53	3158	96 41 54	3170
26	SUN W.	106 56 59	3262	108 21 55	3274	109 46 37	3285	111 11 6	3296
	Spica W.	58 49 41	2945	60 21 3	2954	61 52 13	2963	63 23 12	2973
	Fomalhaut E.	74 40 55	3215	73 15 4	3232	71 49 33	3248	70 24 20	3263
	α Pegasi E.	89 30 19	3225	88 4 39	3236	86 39 13	3247	85 14 0	3258
	Jupiter E.	112 55 16	2886	111 22 39	2896	109 50 15	2906	108 18 4	2916
27	SUN W.	118 10 33	3343	119 33 55	3352	120 57 7	3360	122 20 9	3367
	Spica W.	70 55 25	3011	72 25 23	3019	73 55 12	3026	75 24 52	3033
	Saturn W.	33 10 51	3022	34 40 30	3027	36 10 15	3034	37 39 46	3039
	Antares W.	26 15 56	3307	27 39 59	3283	29 4 30	3264	30 29 24	3248
	Fomalhaut E.	63 23 0	3347	61 59 43	3365	60 36 47	3384	59 14 12	3403
	α Pegasi E.	78 11 14	3316	76 47 21	3327	75 23 41	3340	74 0 16	3352
	Jupiter E.	100 40 1	2958	99 3 55	2966	97 37 59	2973	96 7 12	2979
28	SUN W.	129 13 24	3399	130 35 42	3404	131 57 54	3408	133 20 1	3413
	Spica W.	82 51 23	3061	84 20 21	3065	85 49 14	3069	87 18 2	3073
	Saturn W.	45 5 48	3062	46 34 44	3067	48 3 34	3070	49 32 20	3074
	Antares W.	37 37 39	3199	39 3 49	3194	40 30 5	3189	41 56 27	3184
	Fomalhaut E.	52 27 0	3512	51 6 49	3537	49 47 6	3564	48 27 52	3593
	α Pegasi E.	67 6 39	3415	65 44 39	3430	64 22 56	3443	63 1 28	3458
	Jupiter E.	88 35 10	3007	87 5 5	3012	85 35 7	3015	84 5 13	3019
29	Saturn W.	56 55 11	3087	58 23 36	3090	59 51 58	3091	61 20 19	3092
	Antares W.	49 9 25	3169	50 36 11	3168	52 3 0	3165	53 29 51	3163
	Fomalhaut E.	42 0 19	3774	40 44 50	3820	39 30 9	3871	38 16 20	3929
	α Pegasi E.	56 18 34	3543	54 58 57	3564	53 39 43	3585	52 20 52	3608
	Jupiter E.	76 36 50	3034	75 7 19	3036	73 37 51	3038	72 8 26	3039
30	Saturn W.	68 41 42	3096	70 9 57	3096	71 38 12	3095	73 6 28	3095
	Antares W.	60 44 46	3152	62 11 53	3150	63 39 2	3148	65 6 14	3146
	α Pegasi E.	45 53 26	3751	44 37 33	3788	43 22 18	3828	42 7 45	3873
	Jupiter E.	64 41 39	3043	63 12 20	3043	61 43 1	3043	60 13 41	3043
	α Arietis E.	87 10 39	3220	85 44 53	3220	84 19 8	3221	82 53 24	3221
31	Saturn W.	80 27 57	3090	81 56 19	3088	83 24 44	3087	84 53 10	3084
	Antares W.	72 22 55	3134	73 50 24	3131	75 17 56	3128	76 45 32	3125
	Jupiter E.	52 46 53	3038	51 17 27	3036	49 47 59	3035	48 18 29	3033
	α Arietis E.	75 44 53	3225	74 19 13	3225	72 53 33	3226	71 27 55	3227
	Aldebaran E.	107 42 57	3065	106 14 4	3063	104 45 9	3061	103 16 12	3059

MEAN TIME.

LUNAR DISTANCES.

the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
23	Spica W.	27 34 59	2744	29 10 40	2750	30 46 14	2757	32 21 39	2765
	α Aquilæ E.	71 8 13	3188	69 41 50	3218	68 16 2	3249	66 50 51	3280
24	SUN W.	89 37 2	3092	91 5 21	3109	92 33 20	3124	94 1 0	3139
	Spica W.	40 15 44	2815	41 49 52	2827	43 23 45	2838	44 57 24	2849
	α Aquilæ E.	59 54 25	3455	58 33 11	3495	57 12 41	3535	55 52 56	3578
	Fomalhaut E.	92 14 48	3035	90 45 18	3049	89 16 6	3064	87 47 13	3079
25	SUN W.	101 14 50	3212	102 40 45	3225	104 6 25	3238	105 31 49	3250
	Spica W.	52 42 4	2904	54 14 18	2915	55 46 18	2924	57 18 6	2935
	α Aquilæ E.	49 26 43	3833	48 12 15	3895	46 58 50	3959	45 46 29	4028
	Fomalhaut E.	80 27 19	3155	79 0 16	3169	77 33 30	3185	76 7 3	3201
	α Pegasi E.	95 15 9	3181	93 48 37	3192	92 22 18	3203	90 56 12	3214
26	SUN W.	112 35 22	3306	113 59 27	3316	115 23 20	3325	116 47 2	3335
	Spica W.	64 53 59	2981	66 24 36	2989	67 55 2	2997	69 25 19	3005
	Fomalhaut E.	68 59 25	3280	67 34 50	3296	66 10 34	3313	64 46 37	3330
	α Pegasi E.	83 49 0	3270	82 24 13	3281	80 59 40	3293	79 35 20	3305
	Jupiter E.	106 46 5	2924	105 14 17	2934	103 42 42	2942	102 11 16	2950
27	SUN W.	123 43 3	3373	125 5 50	3381	126 28 28	3387	127 50 59	3393
	Spica W.	76 54 24	3039	78 23 49	3044	79 53 7	3050	81 22 18	3055
	Saturn W.	39 9 11	3043	40 38 30	3049	42 7 42	3054	43 36 48	3059
	Antares W.	31 54 36	3235	33 20 4	3224	34 45 45	3215	36 11 37	3206
	Fomalhaut E.	57 51 59	3423	56 30 8	3444	55 8 41	3465	53 47 38	3488
	α Pegasi E.	72 37 4	3364	71 14 6	3376	69 51 22	3389	68 28 53	3402
	Jupiter E.	94 36 33	2985	93 6 1	2991	91 35 37	2997	90 5 20	3002
28	SUN W.	134 42 3	3417	136 4 0	3422	137 25 52	3425	138 47 41	3428
	Spica W.	88 46 45	3076	90 15 24	3079	91 43 59	3083	93 12 29	3086
	Saturn W.	51 1 1	3077	52 29 39	3080	53 58 13	3083	55 26 43	3085
	Antares W.	43 22 55	3181	44 49 27	3178	46 16 3	3175	47 42 42	3172
	Fomalhaut E.	47 9 10	3623	45 51 1	3657	44 33 28	3693	43 16 32	3732
	α Pegasi E.	61 40 17	3473	60 19 23	3490	58 58 48	3507	57 38 31	3524
	Jupiter E.	82 35 24	3023	81 5 40	3026	79 36 0	3029	78 6 23	3032
29	Saturn W.	62 48 38	3094	64 16 55	3094	65 45 12	3096	67 13 27	3096
	Antares W.	54 56 45	3161	56 23 41	3158	57 50 40	3156	59 17 42	3154
	Fomalhaut E.	37 3 30	3992	35 51 42	4061	34 41 2	4140	33 31 39	4230
	α Pegasi E.	51 2 26	3632	49 44 26	3659	48 26 55	3687	47 9 54	3718
	Jupiter E.	70 39 2	3041	69 9 40	3042	67 40 19	3043	66 10 59	3043
30	Saturn W.	74 34 43	3094	76 3 0	3093	77 31 18	3092	78 59 37	3091
	Antares W.	66 33 28	3143	68 0 46	3141	69 28 6	3138	70 55 29	3136
	α Pegasi E.	40 53 58	3922	39 41 1	3976	38 28 58	4037	37 17 55	4105
	Jupiter E.	58 44 22	3042	57 15 1	3041	55 45 39	3041	54 16 17	3039
	α Arietis E.	81 27 40	3222	80 1 57	3223	78 36 15	3223	77 10 33	3225
31	Saturn W.	86 21 39	3082	87 50 11	3080	89 18 45	3077	90 47 23	3075
	Antares W.	78 13 11	3122	79 40 54	3119	81 8 40	3115	82 36 31	3113
	Jupiter E.	46 48 57	3031	45 19 23	3028	43 49 45	3027	42 20 6	3024
	α Arietis E.	70 2 18	3227	68 36 41	3229	67 11 6	3230	65 45 33	3231
	Aldebaran E.	101 47 13	3056	100 18 10	3055	98 49 5	3052	97 19 57	3050

Day of the Month.	AIRY'S Day Numbers— For correcting the Places of the Fixed Stars.					Mean Time of Transit of the First Point of Aries.
	At Mean Midnight,					
	Logarithms of				Value of L	
	E	F	G	H		
1	1.56862	0.96942	0.20925	1.51649	74.482	^h 15 ^m 16 ^s 0.37
2	1.57142	0.97962	0.20995	1.51618	73.892	15 12 4.46
3	1.57415	0.98977	0.21064	1.51587	73.302	15 8 8.55
4	1.57682	0.99988	0.21132	1.51557	72.712	15 4 12.64
5	1.57945	1.00995	0.21199	1.51526	72.122	15 0 16.73
6	1.58201	1.01996	0.21265	1.51495	71.532	14 56 20.82
7	1.58451	1.02990	0.21330	1.51465	70.942	14 52 24.92
8	1.58697	1.03980	0.21395	1.51434	70.352	14 48 29.01
9	1.58936	1.04963	0.21459	1.51403	69.762	14 44 33.10
10	1.59170	1.05938	0.21523	1.51372	69.172	14 40 37.19
11	1.59399	1.06908	0.21586	1.51341	68.583	14 36 41.28
12	1.59622	1.07870	0.21648	1.51310	67.995	14 32 45.37
13	1.59839	1.08823	0.21708	1.51280	67.407	14 28 49.47
14	1.60052	1.09771	0.21768	1.51250	66.820	14 24 53.56
15	1.60259	1.10710	0.21827	1.51220	66.235	14 20 57.65
16	1.60459	1.11641	0.21884	1.51189	65.651	14 17 1.74
17	1.60655	1.12565	0.21942	1.51159	65.068	14 13 5.83
18	1.60845	1.13479	0.21999	1.51129	64.487	14 9 9.93
19	1.61030	1.14383	0.22054	1.51100	63.908	14 5 14.02
20	1.61210	1.15281	0.22110	1.51071	63.330	14 1 18.11
21	1.61384	1.16169	0.22165	1.51042	62.754	13 57 22.21
22	1.61552	1.17048	0.22218	1.51013	62.179	13 53 26.30
23	1.61716	1.17920	0.22271	1.50985	61.606	13 49 30.39
24	1.61874	1.18782	0.22323	1.50958	61.036	13 45 34.49
25	1.62025	1.19634	0.22374	1.50931	60.470	13 41 38.58
26	1.62172	1.20479	0.22425	1.50904	59.905	13 37 42.67
27	1.62313	1.21314	0.22475	1.50877	59.343	13 33 46.76
28	1.62449	1.22139	0.22525	1.50852	58.784	13 29 50.86
29	1.62580	1.22957	0.22574	1.50827	58.227	13 25 54.95
30	1.62705	1.23765	0.22622	1.50802	57.673	13 21 59.04
31	1.62824	1.24564	0.22670	1.50778	57.123	13 18 3.13
32	1.62939	1.25355	0.22718	1.50755	56.574	13 14 7.22

Day of the Month.	BESSEL'S Day Numbers— For correcting the Places of the Fixed Stars.				Days elapsed of the Julian Period at Mean Noon.	Mean Equinoctial Time, adding 0 ^d .269681. Days.	From Mean Noon of January 1.	
	At Mean Midnight,						Day of the Year.	Fraction of the Year.*
	Logarithms of							
	A	B	C	D				
1	+1.0895	-1.1954	+9.6222	+0.8947	2403546	132	213	.5832
2	1.0890	1.1892	9.6249	0.8934	2403547	133	214	.5859
3	1.0973	1.1828	9.6276	0.8921	2403548	134	215	.5887
4	+1.1052	-1.1762	+9.6302	+0.8908	2403549	135	216	.5914
5	1.1129	1.1693	9.6327	0.8895	2403550	136	217	.5941
6	1.1204	1.1623	9.6352	0.8882	2403551	137	218	.5969
7	+1.1276	-1.1559	+9.6377	+0.8869	2403552	138	219	.5996
8	1.1346	1.1474	9.6401	0.8856	2403553	139	220	.6023
9	1.1414	1.1396	9.6425	0.8843	2403554	140	221	.6051
10	+1.1479	-1.1315	+9.6449	+0.8830	2403555	141	222	.6078
11	1.1542	1.1231	9.6472	0.8816	2403556	142	223	.6106
12	1.1603	1.1144	9.6495	0.8803	2403557	143	224	.6133
13	+1.1663	-1.1054	+9.6517	+0.8790	2403558	144	225	.6160
14	1.1720	1.0961	9.6539	0.8777	2403559	145	226	.6188
15	1.1775	1.0865	9.6560	0.8764	2403560	146	227	.6215
16	+1.1828	-1.0765	+9.6582	+0.8751	2403561	147	228	.6242
17	1.1880	1.0662	9.6603	0.8738	2403562	148	229	.6270
18	1.1929	1.0554	9.6623	0.8725	2403563	149	230	.6297
19	+1.1977	-1.0443	+9.6643	+0.8712	2403564	150	231	.6325
20	1.2024	1.0328	9.6663	0.8699	2403565	151	232	.6352
21	1.2068	1.0208	9.6683	0.8687	2403566	152	233	.6379
22	+1.2111	-1.0083	+9.6702	+0.8674	2403567	153	234	.6407
23	1.2152	0.9953	9.6721	0.8662	2403568	154	235	.6434
24	1.2192	0.9818	9.6739	0.8650	2403569	155	236	.6461
25	+1.2230	-0.9677	+9.6757	+0.8638	2403570	156	237	.6489
26	1.2266	0.9531	9.6775	0.8626	2403571	157	238	.6516
27	1.2301	0.9377	9.6793	0.8615	2403572	158	239	.6544
28	+1.2335	-0.9217	+9.6810	+0.8603	2403573	159	240	.6571
29	1.2367	0.9050	9.6827	0.8592	2403574	160	241	.6598
30	1.2398	0.8874	9.6844	0.8581	2403575	161	242	.6626
31	1.2427	0.8689	9.6861	0.8570	2403576	162	243	.6653
32	+1.2455	-0.8495	+9.6877	+0.8560	2403577	163	244	.6681

* Add .0012 if Fraction be required for the time t, see page 329.

* Add .0012 if Fraction be required for the time 4, see page 329.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be subtracted from Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
		<i>h m s</i>	<i>s</i>	<i>° ' "</i>	<i>"</i>	<i>m s</i>	<i>m s</i>	<i>s</i>
Tues.	1	10 43 25.72	9.063	N.8 5 51.0	54.62	1 4.38	0 16.56	0.791
Wed.	2	10 47 3.08	9.051	7 43 56.3	54.93	1 4.34	0 35.69	0.803
Thur.	3	10 50 40.17	9.040	7 21 54.2	55.24	1 4.30	0 55.10	0.814
Frid.	4	10 54 17.01	9.030	6 59 44.8	55.54	1 4.27	1 14.76	0.824
Sat.	5	10 57 53.62	9.021	6 37 28.5	55.82	1 4.23	1 34.65	0.833
Sun.	6	11 1 30.03	9.013	6 15 5.6	56.09	1 4.20	1 54.73	0.841
Mon.	7	11 5 6.26	9.006	5 52 36.5	56.34	1 4.17	2 15.00	0.848
Tues.	8	11 8 42.33	9.000	5 30 1.4	56.58	1 4.15	2 35.43	0.854
Wed.	9	11 12 18.26	8.994	5 7 20.6	56.81	1 4.12	2 56.00	0.860
Thur.	10	11 15 54.06	8.989	4 44 34.5	57.02	1 4.10	3 16.69	0.864
Frid.	11	11 19 29.75	8.986	4 21 43.4	57.23	1 4.08	3 37.49	0.868
Sat.	12	11 23 5.37	8.983	3 58 47.5	57.42	1 4.07	3 58.37	0.872
Sun.	13	11 26 40.92	8.980	3 35 47.4	57.59	1 4.06	4 19.32	0.874
Mon.	14	11 30 16.41	8.978	3 12 43.3	57.75	1 4.05	4 40.32	0.876
Tues.	15	11 33 51.86	8.977	2 49 35.6	57.89	1 4.04	5 1.37	0.877
Wed.	16	11 37 27.29	8.976	2 26 24.7	58.02	1 4.04	5 22.43	0.878
Thur.	17	11 41 2.72	8.976	2 3 10.7	58.14	1 4.04	5 43.50	0.878
Frid.	18	11 44 38.15	8.977	1 39 54.2	58.24	1 4.05	6 4.56	0.877
Sat.	19	11 48 13.60	8.978	1 16 35.4	58.32	1 4.06	6 25.60	0.876
Sun.	20	11 51 49.11	8.981	0 53 14.8	58.39	1 4.07	6 46.59	0.873
Mon.	21	11 55 24.68	8.984	0 29 52.6	58.45	1 4.08	7 7.51	0.870
Tues.	22	11 59 0.33	8.988	N.0 6 29.2	58.49	1 4.09	7 28.35	0.866
Wed.	23	12 2 36.08	8.992	S.0 16 54.9	58.51	1 4.11	7 49.09	0.862
Thur.	24	12 6 11.95	8.997	0 40 19.5	58.52	1 4.14	8 9.72	0.857
Frid.	25	12 9 47.95	9.004	1 3 44.2	58.52	1 4.16	8 30.22	0.851
Sat.	26	12 13 24.12	9.011	1 27 8.6	58.51	1 4.19	8 50.55	0.843
Sun.	27	12 17 0.48	9.019	1 50 32.5	58.48	1 4.22	9 10.68	0.835
Mon.	28	12 20 37.04	9.028	2 13 55.4	58.43	1 4.26	9 30.61	0.826
Tues.	29	12 24 13.82	9.038	2 37 17.1	58.37	1 4.30	9 50.33	0.816
Wed.	30	12 27 50.86	9.049	3 0 37.2	58.30	1 4.33	10 9.80	0.805
Thur.	31	12 31 28.17	9.061	S.3 23 55.4	58.21	1 4.37	10 28.99	0.793

* Mean Time of the Semidiameter passing may be found by subtracting 0.18 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be added to Mean Time.	Sidereal Time.
		<i>Apparent</i> Right Ascension.	<i>Apparent</i> Declination.	Semidiam.*		
		h m s	° ' "	' "	m s	h m s
Tues.	1	10 43 25.76	N. 8 5 50.8	15 53.7	0 16.56	10 43 42.32
Wed.	2	10 47 3.17	7 43 55.8	15 53.9	0 35.70	10 47 38.87
Thur.	3	10 50 40.31	7 21 53.3	15 54.2	0 55.11	10 51 35.42
Frid.	4	10 54 17.20	6 59 43.6	15 54.4	1 14.78	10 55 31.98
Sat.	5	10 57 53.86	6 37 27.0	15 54.7	1 34.67	10 59 28.53
Sun.	6	11 1 30.32	6 15 3.8	15 54.9	1 54.76	11 3 25.08
Mon.	7	11 5 6.60	5 52 34.4	15 55.1	2 15.03	11 7 21.63
Tues.	8	11 8 42.72	5 29 59.0	15 55.4	2 35.47	11 11 18.19
Wed.	9	11 12 18.69	5 7 17.9	15 55.6	2 56.05	11 15 14.74
Thur.	10	11 15 54.55	4 44 31.4	15 55.9	3 16.74	11 19 11.29
Frid.	11	11 19 30.30	4 21 39.9	15 56.1	3 37.54	11 23 7.84
Sat.	12	11 23 5.97	3 58 43.7	15 56.4	3 58.42	11 27 4.39
Sun.	13	11 26 41.57	3 35 43.2	15 56.6	4 19.38	11 31 0.95
Mon.	14	11 30 17.11	3 12 38.8	15 56.9	4 40.39	11 34 57.50
Tues.	15	11 33 52.61	2 49 30.8	15 57.1	5 1.44	11 38 54.05
Wed.	16	11 37 28.09	2 26 19.5	15 57.4	5 22.51	11 42 50.60
Thur.	17	11 41 3.57	2 3 5.2	15 57.7	5 43.58	11 46 47.15
Frid.	18	11 44 39.06	1 39 48.3	15 57.9	6 4.65	11 50 43.71
Sat.	19	11 48 14.57	1 16 29.2	15 58.2	6 25.69	11 54 40.26
Sun.	20	11 51 50.13	0 53 8.2	15 58.5	6 46.68	11 58 36.81
Mon.	21	11 55 25.75	0 29 45.6	15 58.8	7 7.61	12 2 33.36
Tues.	22	11 59 1.45	N. 0 6 21.9	15 59.0	7 28.46	12 6 29.91
Wed.	23	12 2 37.25	S. 0 17 2.5	15 59.3	7 49.21	12 10 26.46
Thur.	24	12 6 13.17	0 40 27.4	15 59.6	8 9.84	12 14 23.01
Frid.	25	12 9 49.23	1 3 52.5	15 59.9	8 30.34	12 18 19.57
Sat.	26	12 13 25.45	1 27 17.3	16 0.1	8 50.67	12 22 16.12
Sun.	27	12 17 1.86	1 50 41.4	16 0.4	9 10.81	12 26 12.67
Mon.	28	12 20 38.47	2 14 4.7	16 0.7	9 30.75	12 30 9.22
Tues.	29	12 24 15.30	2 37 26.7	16 1.0	9 50.47	12 34 5.77
Wed.	30	12 27 52.39	3 0 47.1	16 1.3	10 9.94	12 38 2.33
Thur.	31	12 31 29.75	S. 3 24 5.5	16 1.5	10 29.13	12 41 58.88

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	159 16 27.9	N.0°23	0.0036790	14 45.9	14 47.1	54 5.5	54 10.0
2	160 14 35.4	0.12	0.0035722	14 48.6	14 50.5	54 15.7	54 22.6
3	161 12 44.6	N.0°02	0.0034648	14 52.7	14 55.2	54 30.6	54 39.9
4	162 10 55.6	S.0°08	0.0033569	14 58.0	15 1.2	54 50.2	55 1.8
5	163 9 8.5	0.15	0.0032484	15 4.7	15 8.5	55 14.6	55 28.6
6	164 7 23.4	0.20	0.0031394	15 12.7	15 17.2	55 43.8	56 0.3
7	165 5 40.3	0.23	0.0030299	15 22.1	15 27.2	56 18.2	56 37.2
8	166 3 59.3	0.23	0.0029197	15 32.8	15 38.6	56 57.4	57 18.7
9	167 2 20.4	0.21	0.0028088	15 44.6	15 50.9	57 40.9	58 3.7
10	168 0 43.7	0.15	0.0026971	15 57.2	16 3.5	58 26.9	58 50.2
11	168 59 9.2	S.0°07	0.0025845	16 9.8	16 15.8	59 13.0	59 35.0
12	169 57 36.9	N.0°05	0.0024709	16 21.4	16 26.4	59 55.5	60 14.0
13	170 56 6.7	0.18	0.0023561	16 30.8	16 34.2	60 29.9	60 42.6
14	171 54 38.5	0.32	0.0022399	16 36.7	16 38.1	60 51.8	60 56.8
15	172 53 12.3	0.47	0.0021225	16 38.3	16 37.3	60 57.5	60 53.7
16	173 51 48.1	0.60	0.0020038	16 35.0	16 31.6	60 45.5	60 33.0
17	174 50 25.9	0.72	0.0018837	16 27.1	16 21.7	60 16.5	59 56.6
18	175 49 5.5	0.80	0.0017624	16 15.5	16 8.6	59 33.8	59 8.7
19	176 47 47.0	0.86	0.0016399	16 1.3	15 53.8	58 42.1	58 14.5
20	177 46 30.3	0.89	0.0015163	15 46.2	15 38.6	57 46.5	57 18.9
21	178 45 15.4	0.87	0.0013919	15 31.3	15 24.3	56 52.1	56 26.4
22	179 44 2.3	0.84	0.0012667	15 17.8	15 11.7	56 2.4	55 40.3
23	180 42 50.9	0.78	0.0011410	15 6.3	15 1.5	55 20.3	55 2.7
24	181 41 41.2	0.70	0.0010149	14 57.3	14 53.8	54 47.4	54 34.5
25	182 40 33.2	0.60	0.0008884	14 50.9	14 48.7	54 24.1	54 16.1
26	183 39 26.9	0.49	0.0007619	14 47.2	14 46.3	54 10.5	54 7.2
27	184 38 22.4	0.38	0.0006354	14 46.0	14 46.2	54 6.0	54 6.8
28	185 37 19.7	0.26	0.0005089	14 47.0	14 48.2	54 9.6	54 14.0
29	186 36 18.9	0.15	0.0003827	14 49.8	14 51.8	54 20.0	54 27.4
30	187 35 20.0	N.0°04	0.0002569	14 54.2	14 56.9	54 36.1	54 45.9
31	188 34 23.0	S.0°06	0.0001314	14 59.8	15 2.9	54 56.6	55 8.1

MEAN TIME.

		THE MOON'S													
Day of the Week.	Day of the Month.	Longitude.						Latitude.				Age.	Meridian		
		Noon.			Midnight.			Noon.		Midnight.		Noon.	Passage.		
		°	'	"	°	'	"	°	'	"	°			'	"
Tues.	1	332	1	29.2	337	57	27.0	S. 0	33	16.0	S. 1	5	44.5	14.3	11 54.3
Wed.	2	343	54	41.0	349	53	26.5	1	37	35.8	2	8	29.8	15.3	12 37.7
Thur.	3	355	53	58.2	1	56	30.1	2	38	6.1	3	6	5.1	16.3	13 20.9
Frid.	4	8	1	16.5	14	8	31.4	3	32	6.9	3	55	52.7	17.3	14 4.3
Sat.	5	20	18	29.2	26	31	24.7	4	17	4.2	4	35	24.0	18.3	14 48.8
Sun.	6	32	47	32.9	39	7	9.6	4	50	35.3	5	2	23.3	19.3	15 34.8
Mon.	7	45	30	30.9	51	57	53.0	5	10	34.1	5	14	55.4	20.3	16 23.1
Tues.	8	58	29	31.8	65	5	42.5	5	15	16.8	5	11	29.7	21.3	17 14.2
Wed.	9	71	46	39.4	78	32	34.4	5	3	28.6	4	51	10.3	22.3	18 8.3
Thur.	10	85	23	37.3	92	19	53.4	4	34	35.6	4	13	48.6	23.3	19 5.0
Frid.	11	99	21	23.9	106	28	4.1	3	48	58.7	3	20	20.2	24.3	20 3.7
Sat.	12	113	39	42.4	120	55	59.8	2	48	12.8	2	13	2.7	25.3	21 3.1
Sun.	13	128	16	29.1	135	40	34.6	1	35	21.5	S. 0	55	47.0	26.3	22 2.0
Mon.	14	143	7	32.6	150	36	31.6	S. 0	15	1.4	N. 0	26	9.1	27.3	22 59.6
Tues.	15	158	6	33.5	165	36	36.2	N. 1	6	56.3	1	46	32.0	28.3	23 55.4
Wed.	16	173	5	34.9	180	32	24.8	2	24	9.6	2	59	6.5	29.3	6
Thur.	17	187	56	3.1	195	15	32.8	3	30	45.6	3	58	36.3	0.9	0 49.7
Frid.	18	202	30	3.0	209	38	52.0	4	22	15.8	4	41	28.4	1.9	1 42.6
Sat.	19	216	41	27.7	223	37	28.3	4	56	6.2	5	6	7.7	2.9	2 34.7
Sun.	20	230	26	42.2	237	9	7.8	5	11	37.1	5	12	42.9	3.9	3 26.2
Mon.	21	243	44	52.1	250	14	10.2	5	9	37.4	5	2	35.2	4.9	4 17.2
Tues.	22	256	37	24.0	262	55	0.4	4	51	52.4	4	37	46.5	5.9	5 7.8
Wed.	23	269	7	30.9	275	15	29.7	4	20	35.0	4	0	35.6	6.9	5 57.8
Thur.	24	281	19	33.1	287	20	18.8	3	38	5.8	3	13	23.3	7.9	6 46.9
Frid.	25	293	18	24.6	299	14	28.2	2	46	45.0	2	18	27.8	8.9	7 34.8
Sat.	26	305	9	6.4	311	2	54.4	1	48	49.0	1	18	5.6	9.9	8 21.5
Sun.	27	316	56	26.1	322	50	13.2	N. 0	46	34.9	N. 0	14	34.5	10.9	9 7.0
Mon.	28	328	44	44.6	334	40	27.1	S. 0	17	37.4	S. 0	49	42.2	11.9	9 51.4
Tues.	29	340	37	44.3	346	36	57.4	1	21	20.4	1	52	12.7	12.9	10 35.1
Wed.	30	352	38	24.4	358	42	20.5	2	21	58.7	2	50	18.3	13.9	11 18.5
Thur.	31	4	48	57.8	10	58	26.0	S. 3	16	50.6	S. 3	41	15.9	14.9	12 2.2

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
TUESDAY 1.				THURSDAY 3.			
0	h m s 22 16 53.69	S. 11 16 41.8	80.73	0	h m s 23 49 8.67	S. 4 2 55.6	97.71
1	22 18 50.40	11 8 35.9	81.22	1	23 51 3.21	3 53 8.7	97.91
2	22 20 47.03	11 0 27.1	81.71	2	23 52 57.75	3 43 20.7	98.11
3	22 22 43.58	10 52 15.4	82.19	3	23 54 52.29	3 33 31.4	98.30
4	22 24 40.05	10 44 0.8	82.67	4	23 56 46.84	3 23 41.0	98.48
5	22 26 36.44	10 35 43.4	83.13	5	23 58 41.40	3 13 49.6	98.66
6	22 28 32.75	10 27 23.2	83.60	6	0 0 35.97	3 3 57.1	98.84
7	22 30 28.98	10 19 0.2	84.06	7	0 2 30.55	2 54 3.5	99.01
8	22 32 25.14	10 10 34.5	84.51	8	0 4 25.15	2 44 9.0	99.17
9	22 34 21.23	10 2 6.1	84.95	9	0 6 19.76	2 34 13.5	99.33
10	22 36 17.25	9 53 35.1	85.39	10	0 8 14.39	2 24 17.1	99.48
11	22 38 13.19	9 45 1.4	85.83	11	0 10 9.04	2 14 19.8	99.62
12	22 40 9.07	9 36 25.1	86.26	12	0 12 3.72	2 4 21.7	99.75
13	22 42 4.88	9 27 46.3	86.68	13	0 13 58.43	1 54 22.8	99.88
14	22 44 0.62	9 19 5.0	87.09	14	0 15 53.16	1 44 23.2	100.00
15	22 45 56.30	9 10 21.2	87.51	15	0 17 47.93	1 34 22.8	100.12
16	22 47 51.91	9 1 34.9	87.92	16	0 19 42.73	1 24 21.8	100.23
17	22 49 47.47	8 52 46.2	88.31	17	0 21 37.56	1 14 20.1	100.33
18	22 51 42.96	8 43 55.2	88.70	18	0 23 32.44	1 4 17.8	100.43
19	22 53 38.40	8 35 1.8	89.09	19	0 25 27.35	0 54 15.0	100.52
20	22 55 33.78	8 26 6.1	89.48	20	0 27 22.31	0 44 11.6	100.60
21	22 57 29.10	8 17 8.1	89.85	21	0 29 17.31	0 34 7.8	100.67
22	22 59 24.37	8 8 7.9	90.22	22	0 31 12.36	0 24 3.5	100.74
23	23 1 19.59	S. 7 59 5.5	90.58	23	0 33 7.46	S. 0 13 58.9	100.80
WEDNESDAY 2.				FRIDAY 4.			
0	23 3 14.75	S. 7 50 0.9	90.94	0	0 35 2.61	S. 0 3 53.9	100.86
1	23 5 9.87	7 40 54.2	91.29	1	0 36 57.82	N. 0 6 11.4	100.91
2	23 7 4.94	7 31 45.4	91.63	2	0 38 53.08	0 16 17.0	100.96
3	23 8 59.97	7 22 34.6	91.97	3	0 40 48.41	0 26 22.9	100.99
4	23 10 54.96	7 13 21.7	92.31	4	0 42 43.80	0 36 28.9	101.02
5	23 12 49.91	7 4 6.9	92.63	5	0 44 39.25	0 46 35.1	101.05
6	23 14 44.81	6 54 50.1	92.96	6	0 46 34.78	0 56 41.5	101.07
7	23 16 39.68	6 45 31.3	93.28	7	0 48 30.37	1 6 47.9	101.07
8	23 18 34.52	6 36 10.7	93.58	8	0 50 26.03	1 16 54.3	101.07
9	23 20 29.32	6 26 48.3	93.89	9	0 52 21.77	1 27 0.7	101.07
10	23 22 24.09	6 17 24.0	94.19	10	0 54 17.59	1 37 7.1	101.06
11	23 24 18.83	6 7 58.0	94.48	11	0 56 13.49	1 47 13.4	101.03
12	23 26 13.54	5 58 30.3	94.76	12	0 58 9.47	1 57 19.5	101.01
13	23 28 8.23	5 49 0.9	95.04	13	1 0 5.54	2 7 25.5	100.98
14	23 30 2.89	5 39 29.8	95.32	14	1 2 1.70	2 17 31.3	100.94
15	23 31 57.53	5 29 57.0	95.59	15	1 3 57.95	2 27 36.8	100.90
16	23 33 52.15	5 20 22.7	95.85	16	1 5 54.29	2 37 42.1	100.85
17	23 35 46.76	5 10 46.8	96.10	17	1 7 50.73	2 47 47.0	100.78
18	23 37 41.35	5 1 9.5	96.35	18	1 9 47.27	2 57 51.5	100.72
19	23 39 35.92	4 51 30.6	96.60	19	1 11 43.90	3 7 55.6	100.65
20	23 41 30.49	4 41 50.3	96.83	20	1 13 40.64	3 17 59.3	100.57
21	23 43 25.04	4 32 8.7	97.06	21	1 15 37.49	3 28 2.5	100.48
22	23 45 19.59	4 22 25.6	97.29	22	1 17 34.45	3 38 5.1	100.38
23	23 47 14.13	4 12 41.2	97.50	23	1 19 31.51	3 48 7.1	100.28
24	23 49 8.67	S. 4 2 55.6	97.71	24	1 21 28.69	N. 3 58 8.5	100.17

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
SATURDAY 5.				MONDAY 7.			
0	^h 1 ^m 21 ^s 28.69	N. 3 58 8.5	100.17	0	^h 2 ^m 58 ^s 17.89	N. 11 32 14.4	86.01
1	1 23 25.99	4 8 9.2	100.06	1	3 0 23.77	11 40 49.0	85.51
2	1 25 23.41	4 18 9.2	99.93	2	3 2 29.89	11 49 20.5	85.00
3	1 27 20.95	4 28 8.4	99.81	3	3 4 36.24	11 57 49.0	84.50
4	1 29 18.61	4 38 6.9	99.68	4	3 6 42.83	12 6 14.5	83.98
5	1 31 16.40	4 48 4.5	99.53	5	3 8 49.67	12 14 36.8	83.44
6	1 33 14.32	4 58 1.2	99.37	6	3 10 56.75	12 22 55.8	82.90
7	1 35 12.37	5 7 56.9	99.21	7	3 13 4.07	12 31 11.6	82.36
8	1 37 10.56	5 17 51.7	99.04	8	3 15 11.65	12 39 24.1	81.81
9	1 39 8.88	5 27 45.4	98.87	9	3 17 19.47	12 47 33.3	81.24
10	1 41 7.35	5 37 38.1	98.69	10	3 19 27.54	12 55 39.0	80.66
11	1 43 5.95	5 47 29.7	98.51	11	3 21 35.87	13 3 41.2	80.07
12	1 45 4.70	5 57 20.2	98.31	12	3 23 44.44	13 11 39.9	79.48
13	1 47 3.60	6 7 9.4	98.10	13	3 25 53.27	13 19 35.0	78.88
14	1 49 2.65	6 16 57.4	97.89	14	3 28 2.37	13 27 26.5	78.28
15	1 51 1.86	6 26 44.1	97.67	15	3 30 11.72	13 35 14.3	77.66
16	1 53 1.22	6 36 29.5	97.45	16	3 32 21.33	13 42 58.4	77.03
17	1 55 0.73	6 46 13.5	97.22	17	3 34 31.20	13 50 38.7	76.39
18	1 57 0.41	6 55 56.1	96.98	18	3 36 41.34	13 58 15.1	75.74
19	1 59 0.25	7 5 37.2	96.73	19	3 38 51.75	14 5 47.6	75.08
20	2 1 0.26	7 15 16.8	96.47	20	3 41 2.42	14 13 16.1	74.42
21	2 3 0.44	7 24 54.8	96.20	21	3 43 13.35	14 20 40.6	73.75
22	2 5 0.79	7 34 31.2	95.92	22	3 45 24.56	14 28 1.1	73.06
23	2 7 1.31	N. 7 44 5.9	95.64	23	3 47 36.03	N. 14 35 17.4	72.36
SUNDAY 6.				TUESDAY 8.			
0	2 9 2.00	N. 7 53 38.9	95.36	0	3 49 47.77	N. 14 42 29.4	71.66
1	2 11 2.88	8 3 10.2	95.07	1	3 51 59.78	14 49 37.3	70.96
2	2 13 3.93	8 12 39.7	94.76	2	3 54 12.07	14 56 40.9	70.24
3	2 15 5.17	8 22 7.3	94.44	3	3 56 24.63	15 3 40.2	69.51
4	2 17 6.60	8 31 33.0	94.12	4	3 58 37.47	15 10 35.0	68.77
5	2 19 8.22	8 40 56.8	93.80	5	4 0 50.58	15 17 25.4	68.02
6	2 21 10.02	8 50 18.6	93.46	6	4 3 3.97	15 24 11.2	67.26
7	2 23 12.02	8 59 38.4	93.11	7	4 5 17.64	15 30 52.5	66.50
8	2 25 14.22	9 8 56.0	92.76	8	4 7 31.58	15 37 29.2	65.72
9	2 27 16.61	9 18 11.5	92.41	9	4 9 45.80	15 44 1.1	64.93
10	2 29 19.21	9 27 24.9	92.04	10	4 12 0.30	15 50 28.3	64.13
11	2 31 22.01	9 36 36.0	91.66	11	4 14 15.08	15 56 50.7	63.32
12	2 33 25.01	9 45 44.8	91.27	12	4 16 30.13	16 3 8.2	62.51
13	2 35 28.22	9 54 51.3	90.88	13	4 18 45.47	16 9 20.8	61.69
14	2 37 31.64	10 3 55.4	90.48	14	4 21 1.09	16 15 28.5	60.86
15	2 39 35.27	10 12 57.1	90.07	15	4 23 16.99	16 21 31.1	60.02
16	2 41 39.12	10 21 56.3	89.65	16	4 25 33.17	16 27 28.7	59.17
17	2 43 43.19	10 30 52.9	89.23	17	4 27 49.63	16 33 21.1	58.31
18	2 45 47.47	10 39 47.0	88.80	18	4 30 6.37	16 39 8.4	57.44
19	2 47 51.98	10 48 38.5	88.35	19	4 32 23.39	16 44 50.4	56.55
20	2 49 56.71	10 57 27.2	87.89	20	4 34 40.69	16 50 27.0	55.66
21	2 52 1.66	11 6 13.2	87.44	21	4 36 58.27	16 55 58.3	54.77
22	2 54 6.84	11 14 56.5	86.97	22	4 39 16.13	17 1 24.2	53.87
23	2 56 12.25	11 23 36.9	86.49	23	4 41 34.27	17 6 44.7	52.95
24	2 58 17.89	N. 11 32 14.4	86.01	24	4 43 52.69	N. 17 11 59.6	52.02

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 9.				FRIDAY 11.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	4 43 52.69	N.17 11 59.6	52.02	0	6 39 35.54	N.19 19 0.9	1.91
1	4 46 11.39	17 17 8.9	51.08	1	6 42 5.39	19 18 45.6	3.19
2	4 48 30.36	17 22 12.6	50.14	2	6 44 35.39	19 18 22.6	4.48
3	4 50 49.61	17 27 10.6	49.19	3	6 47 5.55	19 17 51.9	5.76
4	4 53 9.14	17 32 2.9	48.23	4	6 49 35.85	19 17 13.5	7.04
5	4 55 28.94	17 36 49.4	47.26	5	6 52 6.29	19 16 27.4	8.33
6	4 57 49.01	17 41 30.0	46.28	6	6 54 36.87	19 15 33.5	9.63
7	5 0 9.36	17 46 4.7	45.29	7	6 57 7.58	19 14 31.8	10.93
8	5 2 29.99	17 50 33.5	44.29	8	6 59 38.42	19 13 22.3	12.23
9	5 4 50.88	17 54 56.2	43.28	9	7 2 9.39	19 12 5.0	13.53
10	5 7 12.04	17 59 12.9	42.27	10	7 4 40.48	19 10 39.9	14.83
11	5 9 33.47	18 3 23.5	41.25	11	7 7 11.68	19 9 7.0	16.14
12	5 11 55.17	18 7 27.9	40.22	12	7 9 42.99	19 7 26.2	17.45
13	5 14 17.14	18 11 26.1	39.17	13	7 12 14.41	19 5 37.6	18.76
14	5 16 39.37	18 15 17.9	38.12	14	7 14 45.93	19 3 41.1	20.07
15	5 19 1.86	18 19 3.5	37.06	15	7 17 17.54	19 1 36.8	21.38
16	5 21 24.61	18 22 42.7	35.99	16	7 19 49.25	18 59 24.6	22.69
17	5 23 47.62	18 26 15.4	34.92	17	7 22 21.05	18 57 4.5	24.00
18	5 26 10.89	18 29 41.7	33.84	18	7 24 52.93	18 54 36.6	25.31
19	5 28 34.42	18 33 1.5	32.74	19	7 27 24.88	18 52 0.8	26.63
20	5 30 58.19	18 36 14.6	31.64	20	7 29 56.91	18 49 17.0	27.95
21	5 33 22.22	18 39 21.2	30.54	21	7 32 29.01	18 46 25.4	29.26
22	5 35 46.49	18 42 21.1	29.43	22	7 35 1.18	18 43 25.9	30.57
23	5 38 11.01	N.18 45 14.3	28.30	23	7 37 33.40	N.18 40 18.6	31.88
THURSDAY 10.				SATURDAY 12.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	5 40 35.77	N.18 48 0.7	27.17	0	7 40 5.67	N.18 37 3.3	33.20
1	5 43 0.77	18 50 40.4	26.04	1	7 42 37.99	18 33 40.2	34.50
2	5 45 26.01	18 53 13.2	24.89	2	7 45 10.36	18 30 9.3	35.81
3	5 47 51.49	18 55 39.1	23.74	3	7 47 42.77	18 26 30.5	37.12
4	5 50 17.20	18 57 58.1	22.58	4	7 50 15.21	18 22 43.9	38.42
5	5 52 43.14	19 0 10.1	21.42	5	7 52 47.68	18 18 49.5	39.72
6	5 55 9.31	19 2 15.1	20.24	6	7 55 20.18	18 14 47.3	41.02
7	5 57 35.70	19 4 13.0	19.06	7	7 57 52.70	18 10 37.3	42.31
8	6 0 2.32	19 6 3.8	17.87	8	8 0 25.24	18 6 19.6	43.60
9	6 2 29.15	19 7 47.4	16.68	9	8 2 57.79	18 1 54.1	44.89
10	6 4 56.20	19 9 23.9	15.48	10	8 5 30.35	17 57 20.9	46.17
11	6 7 23.46	19 10 53.2	14.27	11	8 8 2.90	17 52 40.1	47.45
12	6 9 50.93	19 12 15.2	13.06	12	8 10 35.46	17 47 51.5	48.73
13	6 12 18.60	19 13 29.9	11.84	13	8 13 8.01	17 42 55.3	50.00
14	6 14 46.48	19 14 37.3	10.62	14	8 15 40.55	17 37 51.5	51.27
15	6 17 14.55	19 15 37.4	9.39	15	8 18 13.08	17 32 40.1	52.53
16	6 19 42.82	19 16 30.0	8.15	16	8 20 45.58	17 27 21.1	53.80
17	6 22 11.28	19 17 15.2	6.91	17	8 23 18.06	17 21 54.5	55.05
18	6 24 39.93	19 17 52.9	5.66	18	8 25 50.51	17 16 20.5	56.29
19	6 27 8.76	19 18 23.2	4.41	19	8 28 22.93	17 10 39.0	57.53
20	6 29 37.77	19 18 45.9	3.15	20	8 30 55.32	17 4 50.1	58.76
21	6 32 6.96	19 19 1.0	1.89	21	8 33 27.66	16 58 53.8	59.99
22	6 34 36.32	19 19 8.6	0.63	22	8 35 59.95	16 52 50.2	61.22
23	6 37 5.85	19 19 8.6	0.64	23	8 38 32.20	16 46 39.2	62.44
24	6 39 35.54	N.19 19 0.9	1.91	24	8 41 4.39	N.16 40 20.9	63.65

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 th .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 th .
SUNDAY 13.				TUESDAY 15.			
0	h m s	N. 16 40 20.9	63.65	0	h m s	N. 9 34 7.2	109.33
1	8 41 4.39	16 33 55.4	64.85	1	10 40 45.14	9 23 9.3	109.96
2	8 43 36.53	16 27 22.7	66.04	2	10 43 11.25	9 12 7.7	110.57
3	8 46 8.60	16 20 42.9	67.23	3	10 45 37.20	9 1 2.5	111.17
4	8 48 40.61	16 13 56.0	68.41	4	10 48 2.98	8 49 53.7	111.75
5	8 51 12.55	16 7 2.0	69.57	5	10 50 28.60	8 38 41.5	112.32
6	8 53 44.42	16 0 1.1	70.73	6	10 52 54.06	8 27 25.9	112.87
7	8 56 16.21	15 52 53.2	71.89	7	10 55 19.36	8 16 7.1	113.40
8	8 58 47.92	15 45 38.4	73.04	8	10 57 44.49	8 4 45.1	113.92
9	9 1 19.55	15 38 16.7	74.17	9	11 0 9.46	7 53 20.0	114.42
10	9 3 51.09	15 30 48.3	75.29	10	11 2 34.27	7 41 52.0	114.91
11	9 6 22.54	15 23 13.2	76.41	11	11 4 58.91	7 30 21.1	115.39
12	9 8 53.90	15 15 31.4	77.52	12	11 7 23.39	7 18 47.3	115.86
13	9 11 25.16	15 7 43.0	78.62	13	11 9 47.70	7 7 10.8	116.29
14	9 13 56.32	14 59 48.0	79.70	14	11 12 11.86	6 55 31.8	116.71
15	9 16 27.38	14 51 46.6	80.77	15	11 14 35.85	6 43 50.3	117.12
16	9 18 58.34	14 43 38.7	81.84	16	11 16 59.69	6 32 6.3	117.52
17	9 21 29.18	14 35 24.5	82.89	17	11 19 23.36	6 20 20.0	117.90
18	9 23 59.91	14 27 4.0	83.94	18	11 21 46.87	6 8 31.5	118.26
19	9 26 30.53	14 18 37.2	84.97	19	11 24 10.22	5 56 40.9	118.61
20	9 29 1.03	14 10 4.3	85.99	20	11 26 33.42	5 44 48.2	118.94
21	9 31 31.41	14 1 25.3	87.00	21	11 28 56.45	5 32 53.6	119.26
22	9 34 1.67	13 52 40.3	88.00	22	11 31 19.33	5 20 57.1	119.56
23	9 36 31.81	N. 13 43 49.3	88.98	23	11 33 42.05	N. 5 8 58.8	119.85
24	9 39 1.82			24	11 36 4.62		
MONDAY 14.				WEDNESDAY 16.			
0	9 41 31.69	N. 13 34 52.5	89.95	0	11 38 27.03	N. 4 56 58.9	120.12
1	9 44 1.43	13 25 49.9	90.91	1	11 40 49.29	4 44 57.4	120.37
2	9 46 31.04	13 16 41.5	91.87	2	11 43 11.39	4 32 54.5	120.60
3	9 49 0.52	13 7 27.4	92.81	3	11 45 33.34	4 20 50.2	120.83
4	9 51 29.85	12 58 7.8	93.73	4	11 47 55.14	4 8 44.5	121.04
5	9 53 59.05	12 48 42.7	94.64	5	11 50 16.79	3 56 37.7	121.23
6	9 56 28.10	12 39 12.1	95.54	6	11 52 38.29	3 44 29.8	121.40
7	9 58 57.01	12 29 36.2	96.42	7	11 54 59.64	3 32 20.9	121.56
8	10 1 25.77	12 19 55.0	97.29	8	11 57 20.85	3 20 11.0	121.71
9	10 3 54.39	12 10 8.7	98.15	9	11 59 41.91	3 8 0.3	121.84
10	10 6 22.86	12 0 17.2	99.00	10	12 2 2.83	2 55 48.9	121.96
11	10 8 51.17	11 50 20.7	99.83	11	12 4 23.60	2 43 36.8	122.06
12	10 11 19.34	11 40 19.2	100.65	12	12 6 44.23	2 31 24.2	122.14
13	10 13 47.36	11 30 12.9	101.45	13	12 9 4.72	2 19 11.1	122.21
14	10 16 15.22	11 20 1.8	102.24	14	12 11 25.08	2 6 57.7	122.26
15	10 18 42.92	11 9 46.0	103.02	15	12 13 45.30	1 54 44.0	122.30
16	10 21 10.47	10 59 25.6	103.78	16	12 16 5.38	1 42 30.1	122.32
17	10 23 37.86	10 49 0.7	104.52	17	12 18 25.33	1 30 16.1	122.33
18	10 26 5.09	10 38 31.4	105.25	18	12 20 45.14	1 18 2.1	122.33
19	10 28 32.17	10 27 57.7	105.97	19	12 23 4.82	1 5 48.1	122.31
20	10 30 59.09	10 17 19.7	106.68	20	12 25 24.37	0 53 34.3	122.28
21	10 33 25.84	10 6 37.6	107.36	21	12 27 43.79	0 41 20.8	122.23
22	10 35 52.44	9 55 51.4	108.03	22	12 30 3.09	0 29 7.6	122.17
23	10 38 18.87	9 45 1.2	108.68	23	12 32 22.26	0 16 54.8	122.09
24	10 40 45.14	N. 9 34 7.2	109.33	24	12 34 41.30	N. 0 4 42.5	122.00

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
THURSDAY 17.				SATURDAY 19.			
0	12 34 41.30	N. 0 4 42.5	122.00	0	14 23 58.97	S. 9 5 30.2	102.81
1	12 37 0.22	S. 0 7 29.2	121.88	1	14 26 13.75	9 15 45.1	102.16
2	12 39 19.02	0 19 40.1	121.76	2	14 28 28.48	9 25 56.1	101.49
3	12 41 37.70	0 31 50.3	121.63	3	14 30 43.16	9 36 3.0	100.81
4	12 43 56.26	0 43 59.7	121.48	4	14 32 57.78	9 46 5.9	100.13
5	12 46 14.70	0 56 8.1	121.31	5	14 35 12.36	9 56 4.6	99.44
6	12 48 33.03	1 8 15.5	121.14	6	14 37 26.88	10 5 59.2	98.74
7	12 50 51.24	1 20 21.8	120.96	7	14 39 41.35	10 15 49.5	98.03
8	12 53 9.34	1 32 27.0	120.76	8	14 41 55.78	10 25 35.5	97.32
9	12 55 27.34	1 44 30.9	120.53	9	14 44 10.16	10 35 17.3	96.60
10	12 57 45.22	1 56 33.4	120.30	10	14 46 24.49	10 44 54.7	95.86
11	13 0 2.99	2 8 34.5	120.06	11	14 48 38.77	10 54 27.6	95.12
12	13 2 20.66	2 20 34.1	119.80	12	14 50 53.01	11 3 56.2	94.38
13	13 4 38.22	2 32 32.1	119.53	13	14 53 7.21	11 13 20.3	93.63
14	13 6 55.69	2 44 28.5	119.25	14	14 55 21.36	11 22 39.8	92.87
15	13 9 13.05	2 56 23.1	118.95	15	14 57 35.46	11 31 54.7	92.10
16	13 11 30.31	3 8 15.9	118.64	16	14 59 49.53	11 41 5.0	91.33
17	13 13 47.47	3 20 6.8	118.32	17	15 2 3.55	11 50 10.7	90.56
18	13 16 4.54	3 31 55.8	117.99	18	15 4 17.53	11 59 11.7	89.78
19	13 18 21.51	3 43 42.7	117.64	19	15 6 31.47	12 8 8.0	88.98
20	13 20 38.39	3 55 27.5	117.29	20	15 8 45.37	12 16 59.5	88.18
21	13 22 55.17	4 7 10.2	116.92	21	15 10 59.23	12 25 46.2	87.38
22	13 25 11.87	4 18 50.6	116.53	22	15 13 13.05	12 34 28.0	86.57
23	13 27 28.48	S. 4 30 28.6	116.14	23	15 15 26.83	S. 12 43 5.0	85.76
FRIDAY 18.				SUNDAY 20.			
0	13 29 45.00	S. 4 42 4.3	115.74	0	15 17 40.58	S. 12 51 37.1	84.94
1	13 32 1.44	4 53 37.5	115.32	1	15 19 54.28	13 0 4.3	84.11
2	13 34 17.79	5 5 8.2	114.89	2	15 22 7.95	13 8 26.4	83.28
3	13 36 34.05	5 16 36.2	114.45	3	15 24 21.58	13 16 43.6	82.44
4	13 38 50.24	5 28 1.6	114.01	4	15 26 35.17	13 24 55.7	81.60
5	13 41 6.35	5 39 24.3	113.54	5	15 28 48.72	13 33 2.8	80.75
6	13 43 22.37	5 50 44.1	113.06	6	15 31 2.23	13 41 4.7	79.89
7	13 45 38.32	6 2 1.1	112.58	7	15 33 15.71	13 49 1.5	79.04
8	13 47 54.20	6 13 15.1	112.08	8	15 35 29.15	13 56 53.2	78.17
9	13 50 10.00	6 24 26.1	111.58	9	15 37 42.56	14 4 39.6	77.30
10	13 52 25.72	6 35 34.1	111.07	10	15 39 55.92	14 12 20.8	76.43
11	13 54 41.38	6 46 39.0	110.54	11	15 42 9.25	14 19 56.8	75.56
12	13 56 56.97	6 57 40.6	110.00	12	15 44 22.55	14 27 27.5	74.68
13	13 59 12.49	7 8 39.0	109.46	13	15 46 35.81	14 34 52.9	73.79
14	14 1 27.94	7 19 34.1	108.90	14	15 48 49.03	14 42 13.0	72.90
15	14 3 43.32	7 30 25.8	108.33	15	15 51 2.22	14 49 27.7	72.00
16	14 5 58.64	7 41 14.1	107.76	16	15 53 15.37	14 56 37.0	71.11
17	14 8 13.89	7 51 58.9	107.18	17	15 55 28.48	15 3 41.0	70.21
18	14 10 29.08	8 2 40.2	106.58	18	15 57 41.56	15 10 39.5	69.30
19	14 12 44.21	8 13 17.9	105.97	19	15 59 54.59	15 17 32.6	68.39
20	14 14 59.28	8 23 51.9	105.36	20	16 2 7.59	15 24 20.2	67.48
21	14 17 14.29	8 34 22.2	104.73	21	16 4 20.55	15 31 2.3	66.56
22	14 19 29.24	8 44 48.7	104.10	22	16 6 33.48	15 37 38.9	65.64
23	14 21 44.14	8 55 11.4	103.46	23	16 8 46.36	15 44 10.0	64.72
24	14 23 58.97	S. 9 5 30.2	102.81	24	16 10 59.20	S. 15 50 35.5	63.79

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 21.				WEDNESDAY 23.			
0	h m s 16 10 59.20	S. 15 50 35.5	63.79	0	h m s 17 56 18.45	S. 19 6 30.5	17.51
1	16 13 12.01	15 56 55.5	62.86	1	17 58 28.57	19 8 12.7	16.54
2	16 15 24.78	16 3 9.9	61.93	2	18 0 38.61	19 9 49.0	15.57
3	16 17 37.50	16 9 18.7	61.00	3	18 2 48.57	19 11 19.6	14.61
4	16 19 50.19	16 15 21.9	60.07	4	18 4 58.45	19 12 44.3	13.64
5	16 22 2.84	16 21 19.5	59.13	5	18 7 8.24	19 14 3.3	12.68
6	16 24 15.44	16 27 11.4	58.18	6	18 9 17.96	19 15 16.5	11.72
7	16 26 28.01	16 32 57.6	57.23	7	18 11 27.59	19 16 23.9	10.76
8	16 28 40.53	16 38 38.2	56.29	8	18 13 37.13	19 17 35.6	9.80
9	16 30 53.01	16 44 13.1	55.34	9	18 15 46.59	19 18 21.5	8.84
10	16 33 5.44	16 49 42.3	54.39	10	18 17 55.96	19 19 11.7	7.88
11	16 35 17.83	16 55 5.8	53.43	11	18 20 5.24	19 19 56.1	6.92
12	16 37 30.18	17 0 23.5	52.48	12	18 22 14.43	19 20 34.7	5.97
13	16 39 42.48	17 5 35.5	51.53	13	18 24 23.53	19 21 7.7	5.02
14	16 41 54.74	17 10 41.8	50.57	14	18 26 32.54	19 21 35.0	4.07
15	16 44 6.95	17 15 42.3	49.60	15	18 28 41.46	19 21 56.5	3.12
16	16 46 19.12	17 20 37.0	48.63	16	18 30 50.28	19 22 12.4	2.18
17	16 48 31.23	17 25 25.9	47.67	17	18 32 59.01	19 22 22.6	1.23
18	16 50 43.30	17 30 9.1	46.71	18	18 35 7.64	19 22 27.2	0.29
19	16 52 55.32	17 34 46.5	45.75	19	18 37 16.18	19 22 26.1	0.65
20	16 55 7.29	17 39 18.1	44.78	20	18 39 24.62	19 22 19.4	1.59
21	16 57 19.20	17 43 43.8	43.81	21	18 41 32.96	19 22 7.0	2.53
22	16 59 31.07	17 48 3.8	42.84	22	18 43 41.20	19 21 49.0	3.46
23	17 1 42.88	S. 17 52 17.9	41.87	23	18 45 49.35	S. 19 21 25.5	4.39
TUESDAY 22.				THURSDAY 24.			
0	h m s 17 3 54.64	S. 17 56 26.2	40.90	0	h m s 18 47 57.39	S. 19 20 56.3	5.32
1	17 6 6.35	18 0 28.7	39.93	1	18 50 5.33	19 20 21.6	6.25
2	17 8 18.00	18 4 25.3	38.95	2	18 52 13.17	19 19 41.3	7.17
3	17 10 29.59	18 8 16.1	37.98	3	18 54 20.91	19 18 55.5	8.09
4	17 12 41.13	18 12 1.1	37.01	4	18 56 28.54	19 18 4.2	9.01
5	17 14 52.61	18 15 40.2	36.03	5	18 58 36.07	19 17 7.4	9.93
6	17 17 4.03	18 19 13.4	35.05	6	19 0 43.49	19 16 5.0	10.85
7	17 19 15.39	18 22 40.8	34.08	7	19 2 50.81	19 14 57.2	11.75
8	17 21 26.69	18 26 2.3	33.10	8	19 4 58.02	19 13 44.0	12.66
9	17 23 37.93	18 29 18.0	32.13	9	19 7 5.12	19 12 25.3	13.57
10	17 25 49.11	18 32 27.8	31.15	10	19 9 12.11	19 11 1.2	14.48
11	17 28 0.22	18 35 31.8	30.17	11	19 11 18.99	19 9 31.6	15.38
12	17 30 11.27	18 38 29.8	29.18	12	19 13 25.76	19 7 56.7	16.27
13	17 32 22.25	18 41 22.0	28.21	13	19 15 32.42	19 6 16.4	17.17
14	17 34 33.17	18 44 8.4	27.24	14	19 17 38.97	19 4 30.7	18.06
15	17 36 44.02	18 46 48.9	26.27	15	19 19 45.40	19 2 39.7	18.94
16	17 38 54.80	18 49 23.6	25.29	16	19 21 51.72	19 0 43.4	19.83
17	17 41 5.51	18 51 52.4	24.32	17	19 23 57.93	18 58 41.8	20.71
18	17 43 16.15	18 54 15.4	23.34	18	19 26 4.02	18 56 34.9	21.59
19	17 45 26.72	18 56 32.5	22.36	19	19 28 10.00	18 54 22.7	22.46
20	17 47 37.22	18 58 43.7	21.39	20	19 30 15.87	18 52 5.3	23.33
21	17 49 47.64	19 0 49.2	20.42	21	19 32 21.62	18 49 42.7	24.21
22	17 51 57.99	19 2 48.8	19.45	22	19 34 27.25	18 47 14.8	25.07
23	17 54 8.26	19 4 42.6	18.48	23	19 36 32.76	18 44 41.8	25.93
24	17 56 18.45	S. 19 6 30.5	17.51	24	19 38 38.16	S. 18 42 3.6	26.79

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
FRIDAY 25.				SUNDAY 27.			
0	^h 19 ^m 38 ^s 38.16	S. 18° 42' 3.6"	16.79	0	^h 21 ^m 16 ^s 36.55	S. 15° 1' 41.7"	63.43
1	19 40 43.44	18 39 20.3	27.65	1	21 18 36.16	14 55 19.1	64.09
2	19 42 48.60	18 36 31.8	28.50	2	21 20 35.66	14 48 52.6	64.74
3	19 44 53.64	18 33 38.3	29.35	3	21 22 35.05	14 42 22.2	65.39
4	19 46 58.56	18 30 39.6	30.20	4	21 24 34.34	14 35 47.9	66.03
5	19 49 3.37	18 27 35.9	31.03	5	21 26 33.52	14 29 9.8	66.67
6	19 51 8.05	18 24 27.2	31.87	6	21 28 32.60	14 22 27.9	67.31
7	19 53 12.62	18 21 13.4	32.71	7	21 30 31.57	14 15 42.1	67.94
8	19 55 17.07	18 17 54.7	33.53	8	21 32 30.44	14 8 52.6	68.55
9	19 57 21.39	18 14 31.0	34.36	9	21 34 29.20	14 1 59.5	69.17
10	19 59 25.60	18 11 2.3	35.19	10	21 36 27.87	13 55 2.6	69.79
11	20 1 29.68	18 7 28.7	36.01	11	21 38 26.44	13 48 2.0	70.40
12	20 3 33.65	18 3 50.2	36.82	12	21 40 24.91	13 40 57.8	71.00
13	20 5 37.49	18 0 6.8	37.63	13	21 42 23.28	13 33 50.0	71.60
14	20 7 41.22	17 56 18.6	38.44	14	21 44 21.55	13 26 38.6	72.19
15	20 9 44.82	17 52 25.5	39.25	15	21 46 19.73	13 19 23.7	72.78
16	20 11 48.30	17 48 27.6	40.05	16	21 48 17.81	13 12 5.3	73.36
17	20 13 51.66	17 44 24.9	40.85	17	21 50 15.80	13 4 43.4	73.94
18	20 15 54.90	17 40 17.4	41.64	18	21 52 13.69	12 57 18.0	74.51
19	20 17 58.02	17 36 5.2	42.43	19	21 54 11.50	12 49 49.3	75.08
20	20 20 1.01	17 31 48.3	43.21	20	21 56 9.22	12 42 17.1	75.64
21	20 22 3.89	17 27 26.7	43.99	21	21 58 6.84	12 34 41.6	76.20
22	20 24 6.64	17 23 0.4	44.77	22	22 0 4.38	12 27 2.7	76.76
23	20 26 9.28	S. 17 18 29.4	45.54	23	22 2 1.83	S. 12 19 20.5	77.30
SATURDAY 26.				MONDAY 28.			
0	20 28 11.79	S. 17 13 53.9	46.31	0	22 3 59.20	S. 12 11 35.1	77.84
1	20 30 14.18	17 9 13.7	47.07	1	22 5 56.49	12 3 46.4	78.38
2	20 32 16.45	17 4 29.0	47.83	2	22 7 53.69	11 55 54.5	78.91
3	20 34 18.60	16 59 39.8	48.58	3	22 9 50.81	11 47 59.5	79.43
4	20 36 20.62	16 54 46.0	49.34	4	22 11 47.86	11 40 1.3	79.96
5	20 38 22.53	16 49 47.7	50.09	5	22 13 44.82	11 31 59.9	80.48
6	20 40 24.32	16 44 44.9	50.83	6	22 15 41.71	11 23 55.5	80.98
7	20 42 25.98	16 39 37.7	51.57	7	22 17 38.53	11 15 48.1	81.49
8	20 44 27.53	16 34 26.1	52.30	8	22 19 35.27	11 7 37.6	82.00
9	20 46 28.96	16 29 10.1	53.03	9	22 21 31.94	10 59 24.1	82.49
10	20 48 30.27	16 23 49.7	53.76	10	22 23 28.54	10 51 7.7	82.98
11	20 50 31.47	16 18 25.0	54.48	11	22 25 25.07	10 42 48.4	83.47
12	20 52 32.55	16 12 56.0	55.19	12	22 27 21.52	10 34 26.1	83.95
13	20 54 33.51	16 7 22.7	55.90	13	22 29 17.91	10 26 1.0	84.42
14	20 56 34.36	16 1 45.2	56.61	14	22 31 14.24	10 17 33.1	84.89
15	20 58 35.09	15 56 3.4	57.31	15	22 33 10.51	10 9 2.3	85.36
16	21 0 35.70	15 50 17.5	58.01	16	22 35 6.72	10 0 28.8	85.81
17	21 2 36.20	15 44 27.3	58.71	17	22 37 2.87	9 51 52.6	86.26
18	21 4 36.59	15 38 33.0	59.39	18	22 38 58.95	9 43 13.7	86.70
19	21 6 36.86	15 32 34.6	60.08	19	22 40 54.98	9 34 32.2	87.14
20	21 8 37.02	15 26 32.1	60.76	20	22 42 50.96	9 25 48.0	87.58
21	21 10 37.07	15 20 25.5	61.43	21	22 44 46.89	9 17 1.2	88.01
22	21 12 37.01	15 14 14.9	62.10	22	22 46 42.76	9 8 11.8	88.43
23	21 14 36.83	15 8 0.3	62.77	23	22 48 38.58	8 59 20.0	88.85
24	21 16 36.55	S. 15 1 41.7	63.43	24	22 50 34.36	S. 8 50 25.6	89.27

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 29.				WEDNESDAY 30.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	22 50 34.36	S. 8 50 25.6	89.27	0	23 36 43.47	S. 5 5 44.6	97.40
1	22 52 30.09	8 41 28.8	89.67	1	23 38 38.66	4 55 59.4	97.66
2	22 54 25.78	8 32 29.6	90.07	2	23 40 33.86	4 46 12.7	97.92
3	22 56 21.42	8 23 28.0	90.47	3	23 42 29.06	4 36 24.4	98.17
4	22 58 17.02	8 14 24.0	90.86	4	23 44 24.26	4 26 34.7	98.41
5	23 0 12.59	8 5 17.7	91.23	5	23 46 19.48	4 16 43.5	98.65
6	23 2 8.12	7 56 9.2	91.61	6	23 48 14.70	4 6 50.9	98.88
7	23 4 3.61	7 46 58.4	91.99	7	23 50 9.94	3 56 56.9	99.11
8	23 5 59.07	7 37 45.3	92.36	8	23 52 5.19	3 47 1.6	99.33
9	23 7 54.50	7 28 30.1	92.71	9	23 54 0.47	3 37 5.0	99.54
10	23 9 49.89	7 19 12.7	93.07	10	23 55 55.76	3 27 7.1	99.74
11	23 11 45.26	7 9 53.3	93.42	11	23 57 51.07	3 17 8.1	99.93
12	23 13 40.61	7 0 31.7	93.76	12	23 59 46.41	3 7 7.9	100.13
13	23 15 35.93	6 51 8.1	94.09	13	0 1 41.77	2 57 6.5	100.32
14	23 17 31.23	6 41 42.6	94.43	14	0 3 37.16	2 47 4.1	100.49
15	23 19 26.51	6 32 15.0	94.76	15	0 5 32.58	2 37 0.6	100.67
16	23 21 21.77	6 22 45.5	95.08	16	0 7 28.04	2 26 56.0	100.84
17	23 23 17.02	6 13 14.1	95.38	17	0 9 23.53	2 16 50.5	101.00
18	23 25 12.25	6 3 40.9	95.68	18	0 11 19.05	2 6 44.0	101.16
19	23 27 7.47	5 54 5.9	95.99	19	0 13 14.62	1 56 36.6	101.30
20	23 29 2.68	5 44 29.0	96.29	20	0 15 10.23	1 46 28.4	101.43
21	23 30 57.89	5 34 50.4	96.57	21	0 17 5.88	1 36 19.4	101.56
22	23 32 53.09	5 25 10.2	96.85	22	0 19 1.58	1 26 9.6	101.70
23	23 34 48.28	5 15 28.2	97.13	23	0 20 57.32	1 15 59.0	101.82
24	23 36 43.47	S. 5 5 44.6	97.40	24	0 22 53.12	S. 1 5 47.8	101.92

PHASES OF THE MOON.

Sept. 1	○	Full Moon	- - - - -	^h ^m
9	☾	Last Quarter	- - - - -	15 57.4
16	●	New Moon	- - - - -	10 4.0
23	☾	First Quarter	- - - - -	1 19.5
			- - - - -	3 21.8

Sept. 14	☾	Perigee	- - - - -	^h
27	☾	Apogee	- - - - -	20
			- - - - -	1

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
1	Saturn W.	92 16 3	3071	93 44 48	3069	95 13 35	3065	96 42 27	3062
	Antares W.	84 4 25	3110	85 32 22	3106	87 0 24	3103	88 28 30	3100
	α Aquilæ W.	42 47 5	4282	43 54 14	4214	45 2 27	4151	46 11 40	4092
	Jupiter E.	40 50 23	3021	39 20 36	3019	37 50 47	3016	36 20 54	3014
	α Arietis E.	64 20 1	3234	62 54 32	3236	61 29 5	3238	60 3 40	3241
	Aldebaran E.	95 50 46	3046	94 21 30	3044	92 52 12	3040	91 22 49	3037
2	Saturn W.	104 7 47	3044	105 37 5	3040	107 6 28	3036	108 35 56	3032
	Antares W.	95 50 3	3082	97 18 35	3078	98 47 12	3074	100 15 53	3069
	α Aquilæ W.	52 10 31	3863	53 24 28	3827	54 39 2	3793	55 54 12	3761
	α Arietis E.	52 57 36	3261	51 32 39	3267	50 7 49	3274	48 43 7	3282
	Aldebaran E.	83 54 49	3018	82 24 59	3014	80 55 4	3010	79 25 3	3005
	Mars E.	118 18 40	3266	116 53 49	3262	115 28 53	3256	114 3 50	3252
3	α Aquilæ W.	62 17 45	3628	63 35 49	3607	64 54 16	3585	66 13 7	3565
	α Arietis E.	41 42 27	3343	40 19 5	3361	38 56 4	3381	37 33 26	3405
	Aldebaran E.	71 53 31	2981	70 22 54	2975	68 52 10	2970	67 21 20	2964
	Mars E.	106 57 6	3224	105 31 25	3218	104 5 37	3212	102 39 42	3206
	Venus E.	121 10 57	3256	119 45 54	3251	118 20 45	3246	116 55 31	3240
4	α Aquilæ W.	72 52 24	3480	74 13 10	3465	75 34 13	3452	76 55 31	3439
	Fomalhaut W.	39 9 35	3704	40 26 18	3651	41 43 58	3602	43 2 30	3556
	Aldebaran E.	59 45 18	2934	58 13 42	2927	56 41 58	2920	55 10 5	2914
	Mars E.	95 28 14	3173	94 1 32	3166	92 34 42	3159	91 7 44	3151
	Venus E.	109 47 38	3212	108 21 43	3205	106 55 40	3199	105 29 30	3193
5	Fomalhaut W.	49 46 27	3377	51 9 10	3348	52 32 26	3320	53 56 15	3294
	α Pegasi W.	36 48 57	3872	38 2 45	3798	39 17 49	3730	40 34 5	3668
	Aldebaran E.	47 28 28	2877	45 55 40	2869	44 22 41	2862	42 49 33	2853
	Mars E.	83 50 33	3112	82 22 38	3104	80 54 33	3096	79 26 18	3087
	Pollux E.	91 34 35	2938	90 3 5	2931	88 31 26	2923	86 59 36	2915
	Venus E.	98 16 35	3157	96 49 34	3149	95 22 24	3141	93 55 4	3133
6	Fomalhaut W.	61 2 26	3181	62 28 58	3161	63 55 54	3141	65 23 14	3123
	α Pegasi W.	47 10 22	3425	48 32 10	3386	49 54 42	3350	51 17 56	3315
	Mars E.	72 2 17	3040	70 32 54	3030	69 3 18	3021	67 33 31	3010
	Pollux E.	79 17 49	2873	77 44 55	2864	76 11 50	2855	74 38 33	2847
	Venus E.	86 35 50	3089	85 7 27	3079	83 18 52	3069	82 10 5	3060
	SUN E.	131 9 4	3158	129 42 5	3148	128 14 54	3138	126 47 31	3127
7	Fomalhaut W.	72 45 20	3037	74 14 47	3020	75 44 35	3005	77 14 42	2989
	α Pegasi W.	58 23 22	3170	59 50 7	3144	61 17 23	3119	62 45 9	3096
	Jupiter W.	33 21 53	2701	34 58 31	2689	36 35 25	2678	38 12 34	2665
	Mars E.	60 1 16	2956	58 30 8	2945	56 58 46	2933	55 27 9	2921
	Pollux E.	66 49 17	2801	65 14 50	2792	63 40 11	2782	62 5 20	2773
	Venus E.	74 43 3	3007	73 12 59	2996	71 42 41	2984	70 12 8	2973
	SUN E.	119 27 12	3070	117 58 26	3059	116 29 26	3046	115 0 10	3034
8	α Pegasi W.	70 10 47	2990	71 41 13	2971	73 12 2	2951	74 43 16	2933
	Jupiter W.	46 22 35	2603	48 1 26	2589	49 40 36	2576	51 20 4	2562
	Mars E.	47 45 17	2860	46 12 7	2848	44 38 42	2835	43 5 0	2823
	Pollux E.	54 8 5	2728	52 32 2	2720	50 55 49	2711	49 19 24	2704
	Venus E.	62 35 38	2911	61 3 33	2897	59 31 10	2884	57 58 31	2871

MEAN TIME.

LUNAR DISTANCES.

the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^b .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
1	Saturn W.	98 11 23	3060	99 40 22	3056	101 9 26	3052	102 38 35	3049
	Antares W.	89 56 40	3096	91 24 54	3092	92 53 13	3089	94 21 36	3086
	α Aquilæ W.	47 21 49	4040	48 32 49	3990	49 44 39	3945	50 57 13	3902
	Jupiter E.	34 50 59	3010	33 20 59	3008	31 50 56	3005	30 20 49	3002
	α Arietis E.	58 38 19	3243	57 13 1	3247	55 47 48	3251	54 22 39	3256
	Aldebaran E.	89 53 22	3033	88 23 50	3030	86 54 15	3026	85 24 34	3022
2	Saturn W.	110 5 29	3027	111 35 8	3023	113 4 52	3018	114 34 42	3013
	Antares W.	101 44 40	3066	103 13 31	3063	104 42 26	3058	106 11 27	3054
	α Aquilæ W.	57 9 55	3730	58 26 10	3703	59 42 54	3677	61 0 6	3651
	α Arietis E.	47 18 35	3291	45 54 13	3301	44 30 3	3313	43 6 7	3327
	Aldebaran E.	77 54 56	3001	76 24 44	2996	74 54 26	2991	73 24 2	2985
	Mars E.	112 38 42	3247	111 13 28	3241	109 48 7	3236	108 22 40	3230
3	α Aquilæ W.	67 32 19	3547	68 51 51	3528	70 11 44	3512	71 31 55	3496
	α Arietis E.	36 11 15	3432	34 49 35	3464	33 28 31	3501	32 8 8	3544
	Aldebaran E.	65 50 22	2958	64 19 17	2953	62 48 5	2946	61 16 45	2941
	Mars E.	101 13 40	3199	99 47 30	3193	98 21 12	3187	96 54 47	3180
	Venus E.	115 30 9	3235	114 4 42	3229	112 39 7	3224	111 13 26	3218
4	α Aquilæ W.	78 17 4	3425	79 38 52	3413	81 0 54	3401	82 23 9	3389
	Fomalhaut W.	44 21 52	3515	45 41 59	3477	47 2 49	3441	48 24 19	3408
	Aldebaran E.	53 38 4	2907	52 5 54	2900	50 33 35	2892	49 1 6	2885
	Mars E.	89 40 36	3144	88 13 20	3136	86 45 54	3128	85 18 18	3120
	Venus E.	104 3 12	3186	102 36 46	3178	101 10 11	3172	99 43 28	3164
5	Fomalhaut W.	55 20 33	3269	56 45 21	3246	58 10 36	3223	59 36 18	3201
	α Pegasi W.	41 51 26	3611	43 9 49	3559	44 29 8	3511	45 49 20	3466
	Aldebaran E.	41 16 13	2845	39 42 43	2836	38 9 2	2827	36 35 9	2818
	Mars E.	77 57 52	3078	76 29 15	3069	75 0 27	3060	73 31 28	3050
	Pollux E.	85 27 36	2906	83 55 25	2898	82 23 4	2890	80 50 32	2881
	Venus E.	92 27 34	3124	90 59 54	3115	89 32 3	3107	88 4 2	3098
6	Fomalhaut W.	66 50 56	3105	68 19 0	3087	69 47 26	3069	71 16 13	3053
	α Pegasi W.	52 41 50	3283	54 6 21	3253	55 31 27	3224	56 57 8	3196
	Mars E.	66 3 30	3000	64 33 17	2989	63 2 50	2978	61 32 10	2967
	Pollux E.	73 5 6	2837	71 31 26	2828	69 57 35	2819	68 23 32	2810
	Venus E.	80 41 6	3050	79 11 55	3039	77 42 31	3029	76 12 54	3018
	SUN E.	125 19 54	3116	123 52 4	3105	122 24 1	3094	120 55 44	3082
7	Fomalhaut W.	78 45 8	2974	80 15 53	2960	81 46 56	2944	83 18 19	2929
	α Pegasi W.	64 13 23	3074	65 42 4	3052	67 11 13	3031	68 40 47	3010
	Jupiter W.	39 50 1	2653	41 27 44	2641	43 5 43	2628	44 44 0	2615
	Mars E.	53 55 17	2909	52 23 10	2898	50 50 48	2885	49 18 10	2873
	Pollux E.	60 30 17	2764	58 55 2	2755	57 19 35	2746	55 43 56	2737
	Venus E.	68 41 21	2960	67 10 18	2949	65 39 1	2936	64 7 27	2924
	SUN E.	113 30 39	3021	112 0 52	3008	110 30 49	2994	109 0 29	2981
8	α Pegasi W.	76 14 53	2915	77 46 53	2898	79 19 15	2880	80 52 0	2863
	Jupiter W.	52 59 51	2549	54 39 56	2535	56 20 20	2522	58 1 3	2507
	Mars E.	41 31 2	2810	39 56 47	2798	38 22 16	2785	36 47 28	2772
	Pollux E.	47 42 49	2696	46 6 4	2689	44 29 10	2683	42 52 8	2678
	Venus E.	56 25 35	2858	54 52 22	2843	53 18 50	2830	51 45 1	2815

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8	SUN E.	107 29 53	2968	105 59 0	2954	104 27 50	2940	102 56 22	2926
9	α Pegasi W.	82 25 6	2847	83 58 33	2830	85 32 22	2815	87 6 30	2799
	Jupiter W.	59 42 6	2494	61 23 28	2479	63 5 11	2465	64 47 13	2450
	α Arietis W.	38 50 0	2911	40 22 5	2870	41 55 2	2833	43 28 47	2798
	Mars E.	35 12 24	2760	33 37 4	2748	32 1 28	2736	30 25 36	2725
	Pollux E.	41 14 59	2674	39 37 44	2671	38 0 25	2669	36 23 3	2670
	Venus E.	50 10 53	2801	48 36 27	2787	47 1 42	2772	45 26 38	2757
	SUN E.	95 14 27	2852	93 41 7	2838	92 7 28	2822	90 33 29	2807
10	α Pegasi W.	95 2 2	2730	96 38 2	2718	98 14 18	2705	99 50 51	2694
	Jupiter W.	73 22 35	2377	75 6 42	2363	76 51 10	2348	78 35 59	2333
	α Arietis W.	51 28 4	2652	53 5 48	2626	54 44 8	2602	56 23 0	2578
	Venus E.	37 26 25	2684	35 49 23	2669	34 12 1	2654	32 34 20	2639
	SUN E.	82 38 32	2729	81 2 30	2714	79 26 8	2698	77 49 25	2682
11	Jupiter W.	87 25 27	2260	89 12 25	2247	90 59 43	2233	92 47 22	2219
	α Arietis W.	64 45 6	2472	66 26 58	2453	68 9 17	2436	69 52 1	2417
	Aldebaran W.	31 20 28	2293	33 6 38	2278	34 53 10	2264	36 40 2	2251
	SUN E.	69 40 35	2604	68 1 46	2590	66 22 37	2575	64 43 7	2560
12	Jupiter W.	101 50 43	2153	103 40 21	2140	105 30 19	2128	107 20 35	2117
	α Arietis W.	78 31 47	2337	80 16 52	2324	82 2 17	2311	83 48 1	2298
	Aldebaran W.	45 39 26	2184	47 28 17	2171	49 17 28	2160	51 6 56	2148
	SUN E.	56 20 39	2490	54 39 12	2477	52 57 27	2465	51 15 24	2453
13	Aldebaran W.	60 18 32	2096	62 9 38	2087	64 0 58	2078	65 52 31	2070
	Mars W.	19 24 4	2362	21 8 33	2340	22 53 34	2321	24 39 2	2305
	Pollux W.	18 45 46	2719	20 22 0	2610	22 0 41	2524	23 41 21	2454
	SUN E.	42 41 4	2399	40 57 27	2390	39 13 38	2382	37 29 37	2374
18	SUN W.	27 0 45	2561	28 40 33	2576	30 20 1	2591	31 59 8	2608
	Saturn E.	38 18 35	2279	36 32 4	2297	34 46 0	2315	33 0 22	2335
	Antares E.	46 14 48	2360	44 30 16	2384	42 46 18	2409	41 2 56	2436
	α Aquilæ E.	94 18 8	2737	92 42 17	2751	91 6 45	2767	89 31 34	2783
19	SUN W.	40 8 53	2697	41 45 37	2716	43 21 56	2735	44 57 50	2754
	Antares E.	32 36 31	2602	30 57 39	2646	29 19 46	2693	27 42 56	2745
	α Aquilæ E.	81 41 34	2884	80 8 55	2908	78 36 46	2932	77 5 8	2957
	Fomalhaut E.	115 22 22	2718	113 46 6	2726	112 10 1	2736	110 34 9	2747
20	SUN W.	52 50 57	2852	54 24 18	2872	55 57 13	2891	57 29 44	2911
	α Aquilæ E.	69 35 24	3102	68 7 17	3134	66 39 49	3167	65 13 1	3203
	Fomalhaut E.	102 38 45	2813	101 4 34	2828	99 30 42	2843	97 57 10	2859
	α Pegasi E.	117 10 30	2920	115 38 37	2927	114 6 52	2936	112 35 19	2945
21	SUN W.	65 6 7	3007	66 36 11	3026	68 5 52	3043	69 35 11	3062
	α Aquilæ E.	58 10 1	3401	56 47 46	3448	55 26 24	3495	54 5 54	3546
	Fomalhaut E.	90 14 46	2944	88 43 23	2962	87 12 22	2979	85 41 43	2997
	α Pegasi E.	105 0 42	3001	103 30 30	3014	102 0 34	3027	100 30 55	3040
22	SUN W.	76 56 15	3149	78 23 25	3165	79 50 16	3182	81 16 47	3197
	α Aquilæ E.	47 38 12	3845	46 23 56	3919	45 10 55	3995	43 59 10	4078
	Fomalhaut E.	78 14 9	3090	76 45 47	3109	75 17 48	3128	73 50 12	3147
	α Pegasi E.	93 6 51	3110	91 38 54	3125	90 11 15	3140	88 43 54	3155

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8	SUN E.	101 24 36	2911	99 52 31	2897	98 20 9	2882	96 47 27	2868
9	α Pegasi W.	88 40 59	2785	90 15 47	2771	91 50 53	2756	93 26 19	2743
	Jupiter W.	66 29 36	2436	68 12 20	2422	69 55 24	2407	71 38 49	2392
	α Arietis W.	45 3 17	2766	46 38 29	2735	48 14 22	2706	49 50 54	2678
	Mars E.	28 49 29	2714	27 13 8	2704	25 36 34	2695	23 59 47	2688
	Pollux E.	34 45 42	2672	33 8 24	2676	31 31 12	2684	29 54 11	2697
	Venus E.	43 51 14	2743	42 15 31	2729	40 39 29	2714	39 3 7	2699
	SUN E.	88 59 11	2791	87 24 31	2776	85 49 32	2760	84 14 12	2745
10	α Pegasi W.	101 27 39	2683	103 4 40	2674	104 41 55	2665	106 19 22	2657
	Jupiter W.	80 21 10	2319	82 6 42	2304	83 52 36	2289	85 38 51	2275
	α Arietis W.	58 2 25	2556	59 42 21	2534	61 22 47	2513	63 3 42	2492
	Venus E.	30 56 18	2624	29 17 55	2610	27 39 13	2595	26 0 11	2580
	SUN E.	76 12 21	2666	74 34 56	2651	72 57 10	2635	71 19 3	2620
11	Jupiter W.	94 35 22	2205	96 23 42	2191	98 12 23	2178	100 1 23	2165
	α Arietis W.	71 35 11	2400	73 18 45	2384	75 2 43	2368	76 47 4	2352
	Aldebaran W.	38 27 14	2236	40 14 48	2223	42 2 41	2210	43 50 54	2197
	SUN E.	63 3 17	2545	61 23 7	2531	59 42 37	2517	58 1 47	2504
12	Jupiter W.	109 11 8	2105	111 1 59	2095	112 53 6	2084	114 44 29	2074
	α Arietis W.	85 34 4	2285	87 20 25	2274	89 7 2	2264	90 53 55	2254
	Aldebaran W.	52 56 42	2137	54 46 45	2126	56 37 5	2115	58 27 41	2105
	SUN E.	49 33 4	2441	47 50 27	2429	46 7 34	2419	44 24 26	2409
13	Aldebaran W.	67 44 16	2063	69 36 13	2056	71 28 20	2051	73 20 37	2044
	Mars W.	26 24 55	2291	28 11 8	2278	29 57 40	2267	31 44 28	2258
	Pollux W.	25 23 39	2397	27 7 18	2350	28 52 4	2311	30 37 47	2278
	SUN E.	35 45 25	2367	34 1 3	2361	32 16 32	2356	30 31 54	2352
18	SUN W.	33 37 52	2625	35 16 13	2643	36 54 10	2660	38 31 44	2678
	Saturn E.	31 15 13	2354	29 30 32	2375	27 46 22	2396	26 2 42	2419
	Antares E.	39 20 12	2465	37 38 9	2496	35 56 50	2528	34 16 16	2564
	α Aquilæ E.	87 56 44	2801	86 22 18	2821	84 48 17	2841	83 14 42	2862
19	SUN W.	46 33 18	2773	48 8 21	2793	49 42 58	2812	51 17 10	2831
	Antares E.	26 7 16	2805	24 32 55	2873	23 0 2	2954	21 28 52	3048
	α Aquilæ E.	75 34 2	2984	74 3 29	3012	72 33 31	3041	71 4 9	3071
	Fomalhaut E.	108 58 31	2759	107 23 9	2771	105 48 3	2785	104 13 15	2798
20	SUN W.	59 1 49	2930	60 33 30	2950	62 4 46	2969	63 35 38	2987
	α Aquilæ E.	63 46 56	3239	62 21 33	3277	60 56 55	3318	59 33 4	3359
	Fomalhaut E.	96 23 59	2875	94 51 8	2892	93 18 39	2909	91 46 32	2926
	α Pegasi E.	111 3 57	2954	109 32 47	2965	108 1 51	2977	106 31 9	2989
21	SUN W.	71 4 7	3080	72 32 41	3098	74 0 53	3115	75 28 44	3132
	α Aquilæ E.	52 46 21	3599	51 27 45	3654	50 10 9	3715	48 53 38	3777
	Fomalhaut E.	84 11 27	3015	82 41 33	3034	81 12 2	3052	79 42 54	3071
	α Pegasi E.	99 1 32	3053	97 32 25	3068	96 3 37	3082	94 35 5	3096
22	SUN W.	82 43 0	3212	84 8 55	3227	85 34 32	3241	86 59 53	3256
	α Aquilæ E.	42 48 47	4168	41 39 51	4267	40 32 28	4373	39 26 42	4490
	Fomalhaut E.	72 22 59	3167	70 56 10	3186	69 29 44	3205	68 3 41	3225
	α Pegasi E.	87 16 51	3169	85 50 5	3184	84 23 37	3199	82 57 27	3214

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22	Jupiter E.	113 54 24	2751	112 18 52	2766	110 43 40	2781	109 8 47	2795
23	Sun W.	88 24 56	3269	89 49 44	3282	91 14 17	3294	92 38 35	3307
	Saturn W.	28 3 23	2964	29 34 21	2973	31 5 7	2982	32 35 42	2991
	Antares W.	22 58 19	3318	24 22 9	3284	25 46 39	3257	27 11 41	3235
	Fomalhaut E.	66 38 2	3247	65 12 48	3266	63 47 57	3287	62 23 31	3308
	α Pegasi E.	81 31 35	3229	80 6 0	3244	78 40 43	3259	77 15 44	3275
	Jupiter E.	101 18 47	2860	99 45 37	2871	98 12 41	2883	96 40 0	2894
24	Sun W.	99 36 42	3361	100 59 43	3371	102 22 33	3379	103 45 13	3388
	Saturn W.	40 5 52	3033	41 35 24	3041	43 4 46	3048	44 33 59	3055
	Antares W.	34 21 42	3179	35 48 16	3174	37 14 56	3171	38 41 40	3168
	Fomalhaut E.	55 27 43	3424	54 5 54	3450	52 44 34	3476	51 23 43	3505
	α Pegasi E.	70 15 17	3352	68 52 5	3368	67 29 12	3385	66 6 38	3401
	Jupiter E.	88 59 55	2942	87 28 30	2950	85 57 15	2958	84 26 10	2966
25	Sun W.	110 36 20	3423	111 58 11	3429	113 19 55	3434	114 41 33	3438
	Saturn W.	51 58 9	3083	53 26 39	3088	54 55 3	3092	56 23 23	3096
	Antares W.	45 56 4	3160	47 23 1	3160	48 49 58	3159	50 16 56	3158
	Fomalhaut E.	44 47 49	3670	43 30 30	3710	42 13 54	3755	40 58 5	3802
	α Pegasi E.	59 18 36	3490	57 58 0	3510	56 37 47	3531	55 17 57	3552
	Jupiter E.	76 52 55	2997	75 22 38	3002	73 52 28	3006	72 22 22	3010
26	Sun W.	121 28 36	3455	122 49 50	3457	124 11 2	3459	125 32 12	3461
	Saturn W.	63 44 2	3109	65 12 1	3110	66 39 59	3111	68 7 55	3111
	Antares W.	57 31 59	3155	58 59 2	3154	60 26 6	3153	61 53 12	3151
	α Pegasi E.	48 45 5	3680	47 27 57	3711	46 11 22	3745	44 55 23	3782
	Jupiter E.	64 53 0	3023	63 23 16	3026	61 53 35	3027	60 23 56	3027
	α Arietis E.	90 21 11	3216	88 55 21	3219	87 29 34	3220	86 3 49	3221
27	Saturn W.	75 27 34	3109	76 55 32	3107	78 23 33	3106	79 51 35	3104
	Antares W.	69 9 13	3141	70 36 33	3138	72 3 57	3136	73 31 23	3132
	Jupiter E.	52 55 44	3026	51 26 4	3025	49 56 22	3024	48 26 39	3022
	α Arietis E.	78 55 20	3225	77 29 41	3225	76 4 1	3226	74 38 23	3225
	Aldebaran E.	110 59 26	3071	109 30 41	3070	108 1 55	3068	106 33 6	3065
28	Saturn W.	87 12 31	3089	88 40 54	3085	90 9 22	3082	91 37 54	3078
	Antares W.	80 49 38	3114	82 17 31	3110	83 45 29	3105	85 13 32	3101
	α Aquilæ W.	40 24 32	4467	41 28 53	4380	42 34 32	4303	43 41 22	4231
	Jupiter E.	40 57 20	3009	39 27 18	3005	37 57 11	3001	36 27 0	2998
	α Arietis E.	67 30 12	3226	66 4 34	3227	64 38 57	3227	63 13 20	3228
	Aldebaran E.	99 8 16	3052	97 39 7	3048	96 9 53	3043	94 40 33	3039
29	Saturn W.	99 1 59	3052	100 31 7	3047	102 0 21	3041	103 29 43	3036
	Antares W.	92 35 16	3075	94 3 56	3070	95 32 42	3065	97 1 35	3060
	α Aquilæ W.	49 30 52	3947	50 43 24	3903	51 56 41	3860	53 10 41	3822
	Jupiter E.	28 54 52	2977	27 24 10	2973	25 53 23	2969	24 22 31	2964
	α Arietis E.	56 5 32	3235	54 40 4	3237	53 14 39	3241	51 49 19	3245
	Aldebaran E.	87 12 33	3014	85 42 37	3009	84 12 35	3003	82 42 26	2997
30	Antares W.	104 27 42	3031	105 57 17	3025	107 26 59	3018	108 56 49	3013
	α Aquilæ W.	59 29 59	3660	60 47 29	3632	62 5 29	3607	63 23 56	3582
	α Arietis E.	44 44 10	3281	43 19 36	3293	41 55 16	3306	40 31 11	3321

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22	Jupiter E.	107 34 12	2808	105 59 55	2822	104 25 56	2835	102 52 14	2847
23	Sun W.	94 2 38	3319	95 26 28	3330	96 50 5	3341	98 13 29	3351
	Saturn W.	34 6 6	3001	35 36 18	3009	37 6 20	3018	38 36 11	3026
	Antares W.	28 37 9	3219	30 2 56	3205	31 28 59	3194	32 55 16	3186
	Fomalhaut E.	60 59 29	3331	59 35 53	3353	58 12 43	3377	56 50 0	3400
	α Pegasi E.	75 51 3	3290	74 26 40	3305	73 2 34	3321	71 38 47	3336
	Jupiter E.	95 7 34	2904	93 35 20	2915	92 3 20	2924	90 31 32	2933
24	Sun W.	105 7 43	3395	106 30 5	3403	107 52 18	3410	109 14 23	3417
	Saturn W.	46 3 4	3061	47 32 1	3067	49 0 51	3073	50 29 33	3078
	Antares W.	40 8 28	3164	41 35 20	3163	43 2 13	3162	44 29 8	3161
	Fomalhaut E.	50 3 24	3534	48 43 37	3566	47 24 25	3598	46 5 48	3633
	α Pegasi E.	64 44 22	3418	63 22 26	3435	62 0 49	3453	60 39 32	3471
	Jupiter E.	82 55 14	2973	81 24 28	2979	79 53 49	2986	78 23 19	2991
25	Sun W.	116 3 6	3442	117 24 35	3446	118 45 59	3450	120 7 19	3453
	Saturn W.	57 51 38	3099	59 19 49	3102	60 47 56	3105	62 16 0	3106
	Antares W.	51 43 56	3158	53 10 55	3158	54 37 55	3156	56 4 57	3156
	Fomalhaut E.	39 43 5	3854	38 28 58	3911	37 15 49	3974	36 3 44	4044
	α Pegasi E.	53 58 30	3575	52 39 28	3599	51 20 52	3624	50 2 44	3651
	Jupiter E.	70 52 22	3014	69 22 26	3017	67 52 34	3019	66 22 45	3022
26	Sun W.	126 53 20	3462	128 14 27	3462	129 35 34	3462	130 56 40	3462
	Saturn W.	69 35 51	3112	71 3 46	3112	72 31 41	3111	73 59 37	3110
	Antares W.	63 20 20	3149	64 47 30	3148	66 14 42	3146	67 41 56	3143
	α Pegasi E.	43 40 2	3822	42 25 23	3866	41 11 29	3914	39 58 23	3967
	Jupiter E.	58 54 17	3028	57 24 39	3028	55 55 1	3028	54 25 23	3027
	α Arietis E.	84 38 5	3222	83 12 22	3224	81 46 41	3224	80 21 0	3225
27	Saturn W.	81 19 40	3102	82 47 47	3099	84 15 58	3096	85 44 13	3093
	Antares W.	74 58 54	3129	76 26 28	3125	77 54 7	3121	79 21 51	3119
	Jupiter E.	46 56 53	3019	45 27 4	3017	43 57 13	3014	42 27 18	3012
	α Arietis E.	73 12 44	3226	71 47 6	3226	70 21 28	3226	68 55 50	3226
	Aldebaran E.	105 4 14	3064	103 35 20	3061	102 6 23	3057	100 37 21	3055
28	Saturn W.	93 6 31	3073	94 35 14	3068	96 4 3	3063	97 32 58	3058
	Antares W.	86 41 41	3096	88 9 56	3091	89 38 17	3087	91 6 43	3081
	α Aquilæ W.	44 49 19	4165	45 58 18	4104	47 8 16	4047	48 19 9	3996
	Jupiter E.	34 56 45	2993	33 26 24	2990	31 55 59	2985	30 25 28	2981
	α Arietis E.	61 47 44	3228	60 22 8	3230	58 56 34	3231	57 31 2	3233
	Aldebaran E.	93 11 9	3035	91 41 39	3030	90 12 3	3025	88 42 21	3020
29	Saturn W.	104 59 11	3029	106 28 48	3024	107 58 31	3017	109 28 22	3010
	Antares W.	98 30 34	3053	99 59 41	3048	101 28 54	3042	102 58 15	3037
	α Aquilæ W.	54 25 20	3785	55 40 38	3750	56 56 32	3719	58 12 59	3688
	Jupiter E.	22 51 33	2961	21 20 31	2957	19 49 24	2953	18 18 12	2951
	α Arietis E.	50 24 3	3250	48 58 53	3256	47 33 50	3263	46 8 55	3271
	Aldebaran E.	81 12 9	2991	79 41 45	2985	78 11 13	2978	76 40 33	2972
30	Antares W.	110 26 45	3007	111 56 49	3002	113 27 0	2996	114 57 18	2990
	α Aquilæ W.	64 42 50	3560	66 2 8	3537	67 21 51	3517	68 41 56	3498
	α Arietis E.	39 7 24	3340	37 43 59	3361	36 20 58	3386	34 58 26	3416
	Aldebaran E.	69 5 6	2937	67 33 34	2930	66 1 53	2923	64 30 3	2915

AIRY'S DAY NUMBERS— For correcting the Places of the Fixed Stars.					Mean Time of Transit of the First Point of Aries.
At Mean Midnight,					
Logarithms of				Value of L	
E	F	G	H		
1.62939	1.25355	0.22718	1.50755	56.574	h m s 13 14 7.22
1.63048	1.26136	0.22765	1.50733	56.029	13 10 11.32
1.63152	1.26908	0.22811	1.50711	55.488	13 6 15.41
1.63251	1.27672	0.22857	1.50689	54.950	13 2 19.50
1.63344	1.28426	0.22902	1.50668	54.417	12 58 23.60
1.63431	1.29171	0.22947	1.50648	53.888	12 54 27.69
1.63514	1.29910	0.22991	1.50628	53.361	12 50 31.78
1.63591	1.30639	0.23035	1.50609	52.839	12 46 35.87
1.63662	1.31357	0.23078	1.50592	52.321	12 42 39.97
1.63729	1.32069	0.23121	1.50575	51.806	12 38 44.07
1.63790	1.32771	0.23164	1.50559	51.296	12 34 48.16
1.63845	1.33463	0.23207	1.50543	50.791	12 30 52.26
1.63896	1.34150	0.23249	1.50528	50.289	12 26 56.35
1.63941	1.34827	0.23291	1.50514	49.792	12 23 0.44
1.63980	1.35494	0.23333	1.50500	49.301	12 19 4.54
1.64014	1.36155	0.23375	1.50488	48.813	12 15 8.63
1.64042	1.36806	0.23417	1.50477	48.330	12 11 12.72
1.64065	1.37448	0.23458	1.50466	47.853	12 7 16.82
1.64083	1.38083	0.23499	1.50456	47.382	12 3 20.91
1.64095	1.38709	0.23540	1.50447	46.917	11 59 25.00
1.64102	1.39326	0.23580	1.50439	46.457	11 55 29.10
1.64104	1.39937	0.23621	1.50432	46.001	11 51 33.19
1.64100	1.40539	0.23662	1.50426	45.551	11 47 37.29
1.64090	1.41131	0.23702	1.50420	45.108	11 43 41.38
1.64075	1.41717	0.23743	1.50415	44.670	11 39 45.48
1.64054	1.42294	0.23784	1.50411	44.239	11 35 49.57
1.64028	1.42863	0.23825	1.50408	43.814	11 31 53.67
1.63998	1.43425	0.23866	1.50406	43.393	11 27 57.76
1.63961	1.43978	0.23907	1.50405	42.979	11 24 1.85
1.63918	1.44523	0.23948	1.50405	42.571	11 20 5.95
1.63871	1.45062	0.23989	1.50406	42.168	11 16 10.04

Day of the Month.	BESSEL's Day Numbers— For correcting the Places of the Fixed Stars.				Days elapsed of the Julian Period at Mean Noon.	Mean Equinoctial Time, adding 0 ^h .269681.	From Mean Noon of January 1.	
	At Mean Midnight,						Day of the Year.	Fraction of the Year.*
	Logarithms of							
	A	B	C	D		Days.		
1	+1 ^h .2455	—0 ^h .8495	+9 ^h .6877	+0 ^h .8560	2403577	163	244	.6681
2	1 ^h .2481	0 ^h .8291	9 ^h .6894	0 ^h .8549	2403578	164	245	.6708
3	1 ^h .2506	0 ^h .8075	9 ^h .6910	0 ^h .8540	2403579	165	246	.6735
4	+1 ^h .2530	—0 ^h .7846	+9 ^h .6925	+0 ^h .8530	2403580	166	247	.6763
5	1 ^h .2552	0 ^h .7603	9 ^h .6941	0 ^h .8521	2403581	167	248	.6790
6	1 ^h .2573	0 ^h .7344	9 ^h .6956	0 ^h .8512	2403582	168	249	.6817
7	+1 ^h .2592	—0 ^h .7067	+9 ^h .6971	+0 ^h .8503	2403583	169	250	.6845
8	1 ^h .2611	0 ^h .6769	9 ^h .6986	0 ^h .8494	2403584	170	251	.6872
9	1 ^h .2628	0 ^h .6449	9 ^h .7001	0 ^h .8486	2403585	171	252	.6900
10	+1 ^h .2643	—0 ^h .6101	+9 ^h .7016	+0 ^h .8478	2403586	172	253	.6927
11	1 ^h .2658	0 ^h .5721	9 ^h .7030	0 ^h .8471	2403587	173	254	.6954
12	1 ^h .2671	0 ^h .5303	9 ^h .7045	0 ^h .8464	2403588	174	255	.6982
13	+1 ^h .2683	—0 ^h .4839	+9 ^h .7059	+0 ^h .8457	2403589	175	256	.7009
14	1 ^h .2693	0 ^h .4318	9 ^h .7073	0 ^h .8451	2403590	176	257	.7036
15	1 ^h .2702	0 ^h .3723	9 ^h .7087	0 ^h .8444	2403591	177	258	.7064
16	+1 ^h .2710	—0 ^h .3033	+9 ^h .7101	+0 ^h .8439	2403592	178	259	.7091
17	1 ^h .2717	0 ^h .2209	9 ^h .7115	0 ^h .8433	2403593	179	260	.7119
18	1 ^h .2722	0 ^h .1189	9 ^h .7128	0 ^h .8428	2403594	180	261	.7146
19	+1 ^h .2726	—9 ^h .9851	+9 ^h .7142	+0 ^h .8424	2403595	181	262	.7173
20	1 ^h .2729	9 ^h .7905	9 ^h .7156	0 ^h .8420	2403596	182	263	.7201
21	1 ^h .2731	—9 ^h .4278	9 ^h .7169	0 ^h .8416	2403597	183	264	.7228
22	+1 ^h .2731	+8 ^h .9131	+9 ^h .7183	+0 ^h .8413	2403598	184	265	.7255
23	1 ^h .2730	9 ^h .6352	9 ^h .7196	0 ^h .8410	2403599	185	266	.7283
24	1 ^h .2728	9 ^h .8930	9 ^h .7209	0 ^h .8407	2403600	186	267	.7310
25	+1 ^h .2725	+0 ^h .0536	+9 ^h .7223	+0 ^h .8405	2403601	187	268	.7338
26	1 ^h .2720	0 ^h .1705	9 ^h .7236	0 ^h .8403	2403602	188	269	.7365
27	1 ^h .2714	0 ^h .2625	9 ^h .7249	0 ^h .8402	2403603	189	270	.7392
28	+1 ^h .2707	+0 ^h .3383	+9 ^h .7263	+0 ^h .8401	2403604	190	271	.7420
29	1 ^h .2698	0 ^h .4028	9 ^h .7276	0 ^h .8400	2403605	191	272	.7447
30	1 ^h .2688	0 ^h .4588	9 ^h .7289	0 ^h .8400	2403606	192	273	.7474
31	+1 ^h .2677	+0 ^h .5083	+9 ^h .7303	+0 ^h .8401	2403607	193	274	.7502

* Add .0012 if Fraction be required for the time 4, see page 329.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be subtracted from Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
Thur.	1	h m s 12 31 28.17	s 9.061	S. 3 23 55.4	58.21	1 4.37	m s 10 28.99	s 0.793
Frid.	2	12 35 5.79	9.074	3 47 11.3	58.11	1 4.42	10 47.87	0.780
Sat.	3	12 38 43.73	9.088	4 10 24.6	57.99	1 4.47	11 6.43	0.766
Sun.	4	12 42 22.02	9.103	4 33 35.0	57.86	1 4.52	11 24.65	0.751
Mon.	5	12 46 0.68	9.119	4 56 42.0	57.72	1 4.58	11 42.49	0.735
Tues.	6	12 49 39.74	9.136	5 19 45.5	57.56	1 4.64	11 59.93	0.718
Wed.	7	12 53 19.22	9.154	5 42 45.0	57.39	1 4.70	12 16.95	0.700
Thur.	8	12 56 59.15	9.173	6 5 40.2	57.20	1 4.76	12 33.53	0.681
Frid.	9	13 0 39.53	9.193	6 28 30.7	57.00	1 4.83	12 49.66	0.662
Sat.	10	13 4 20.39	9.213	6 51 16.2	56.78	1 4.90	13 5.31	0.642
Sun.	11	13 8 1.74	9.234	7 13 56.2	56.55	1 4.97	13 20.47	0.621
Mon.	12	13 11 43.61	9.256	7 36 30.4	56.30	1 5.04	13 35.11	0.599
Tues.	13	13 15 26.01	9.278	7 58 58.4	56.03	1 5.12	13 49.23	0.577
Wed.	14	13 19 8.95	9.302	8 21 19.8	55.75	1 5.20	14 2.80	0.554
Thur.	15	13 22 52.45	9.325	8 43 34.2	55.45	1 5.28	14 15.81	0.530
Frid.	16	13 26 36.53	9.349	9 5 41.1	55.13	1 5.36	14 28.25	0.506
Sat.	17	13 30 21.20	9.374	9 27 40.4	54.80	1 5.45	14 40.10	0.481
Sun.	18	13 34 6.47	9.399	9 49 31.5	54.45	1 5.54	14 51.35	0.456
Mon.	19	13 37 52.36	9.425	10 11 13.9	54.08	1 5.63	15 1.99	0.430
Tues.	20	13 41 38.87	9.451	10 32 47.3	53.70	1 5.73	15 12.01	0.404
Wed.	21	13 45 26.01	9.478	10 54 11.3	53.30	1 5.83	15 21.39	0.377
Thur.	22	13 49 13.81	9.506	11 15 25.4	52.88	1 5.93	15 30.12	0.350
Frid.	23	13 53 2.28	9.534	11 36 29.3	52.44	1 6.03	15 38.19	0.322
Sat.	24	13 56 51.43	9.563	11 57 22.5	51.99	1 6.13	15 45.57	0.293
Sun.	25	14 0 41.28	9.592	12 18 4.7	51.52	1 6.23	15 52.25	0.264
Mon.	26	14 4 31.84	9.622	12 38 35.4	51.03	1 6.34	15 58.23	0.234
Tues.	27	14 8 23.12	9.652	12 58 54.3	50.53	1 6.45	16 3.49	0.204
Wed.	28	14 12 15.14	9.683	13 19 0.9	50.01	1 6.56	16 8.01	0.173
Thur.	29	14 16 7.92	9.715	13 38 54.9	49.48	1 6.67	16 11.78	0.141
Frid.	30	14 20 1.46	9.747	13 58 35.8	48.93	1 6.78	16 14.78	0.109
Sat.	31	14 23 55.79	9.780	14 18 3.4	48.36	1 6.89	16 16.99	0.076
Sun.	32	14 27 50.93	9.814	S. 14 37 17.1	47.78	1 7.00	16 18.41	0.042

* Mean Time of the Semidiameter passing may be found by subtracting 0.18 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be added to Mean Time.	Sidereal Time.
		Apparent Right Assension.	Apparent Declination.	Semidiam.*		
Thur.	1	^h 12 ^m 31 ^s 29.75	[°] S. 3 24 5.5	['] 16 ["] 1.5	^m 10 29.13	^h 12 41 58.88
Frid.	2	12 35 7.42	3 47 21.7	16 1.8	10 48.01	12 45 55.43
Sat.	3	12 38 45.41	4 10 35.3	16 2.1	11 6.57	12 49 51.98
Sun.	4	12 42 23.75	4 33 46.0	16 2.4	11 24.79	12 53 48.54
Mon.	5	12 46 2.46	4 56 53.3	16 2.6	11 42.63	12 57 45.09
Tues.	6	12 49 41.57	5 19 57.0	16 2.9	12 0.07	13 1 41.64
Wed.	7	12 53 21.10	5 42 56.8	16 3.2	12 17.09	13 5 38.19
Thur.	8	12 57 1.07	6 5 52.2	16 3.4	12 33.67	13 9 34.74
Frid.	9	13 0 41.50	6 28 42.9	16 3.7	12 49.80	13 13 31.30
Sat.	10	13 4 22.40	6 51 28.5	16 4.0	13 5.45	13 17 27.85
Sun.	11	13 8 3.80	7 14 8.7	16 4.3	13 20.61	13 21 24.41
Mon.	12	13 11 45.71	7 36 43.1	16 4.5	13 35.25	13 25 20.96
Tues.	13	13 15 28.15	7 59 11.3	16 4.8	13 49.36	13 29 17.51
Wed.	14	13 19 11.13	8 21 32.8	16 5.1	14 2.93	13 33 14.06
Thur.	15	13 22 54.67	8 43 47.3	16 5.4	14 15.94	13 37 10.61
Frid.	16	13 26 38.79	9 5 54.4	16 5.6	14 28.37	13 41 7.16
Sat.	17	13 30 23.50	9 27 53.8	16 5.9	14 40.22	13 45 3.72
Sun.	18	13 34 8.80	9 49 45.0	16 6.2	14 51.47	13 49 0.27
Mon.	19	13 37 54.72	10 11 27.5	16 6.4	15 2.10	13 52 56.82
Tues.	20	13 41 41.26	10 33 0.9	16 6.7	15 12.11	13 56 53.37
Wed.	21	13 45 28.44	10 54 24.9	16 7.0	15 21.49	14 0 49.93
Thur.	22	13 49 16.27	11 15 39.1	16 7.3	15 30.21	14 4 46.48
Frid.	23	13 53 4.77	11 36 43.0	16 7.5	15 38.27	14 8 43.04
Sat.	24	13 56 53.95	11 57 36.2	16 7.8	15 45.64	14 12 39.59
Sun.	25	14 0 43.82	12 18 18.3	16 8.1	15 52.32	14 16 36.14
Mon.	26	14 4 34.40	12 38 49.0	16 8.3	15 58.30	14 20 32.70
Tues.	27	14 8 25.70	12 59 7.8	16 8.6	16 3.55	14 24 29.25
Wed.	28	14 12 17.74	13 19 14.3	16 8.8	16 18.06	14 28 25.80
Thur.	29	14 16 10.54	13 39 8.2	16 9.1	16 11.82	14 32 22.36
Frid.	30	14 20 4.10	13 58 49.1	16 9.4	16 14.81	14 36 18.91
Sat.	31	14 23 58.45	14 18 16.5	16 9.6	16 17.01	14 40 15.46
Sun.	32	14 27 53.60	S. 14 37 30.1	16 9.9	16 18.42	14 44 12.02

* The Semidiameter for *Apparent Noon* may be assumed the same as that for *Mean Noon*.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	188° 34' 23.0	S. 0° 06'	0.0001314	14 59.8	15 2.9	54 56.6	55 8.1
2	189 33 28.0	0° 13'	0.0000063	15 6.3	15 9.8	55 20.3	55 33.2
3	190 32 35.2	0° 19'	9.9998817	15 13.4	15 17.2	55 46.6	56 0.5
4	191 31 44.5	0° 23'	9.9997577	15 21.1	15 25.2	56 14.8	56 29.6
5	192 30 56.1	0° 24'	9.9996341	15 29.3	15 33.5	56 44.7	57 0.2
6	193 30 10.0	0° 21'	9.9995109	15 37.8	15 42.2	57 16.0	57 32.1
7	194 29 26.2	0° 17'	9.9993882	15 46.7	15 51.2	57 48.5	58 5.0
8	195 28 44.7	S. 0° 09'	9.9992659	15 55.7	16 0.2	58 21.6	58 38.0
9	196 28 5.6	N. 0° 01'	9.9991440	16 4.6	16 8.8	58 54.0	59 9.5
10	197 27 28.8	0° 13'	9.9990221	16 12.8	16 16.4	59 24.0	59 37.3
11	198 26 54.3	0° 26'	9.9989002	16 19.6	16 22.2	59 48.9	59 58.5
12	199 26 22.1	0° 40'	9.9987784	16 24.2	16 25.4	60 5.8	60 10.3
13	200 25 52.2	0° 53'	9.9986565	16 25.8	16 25.3	60 11.7	60 9.9
14	201 25 24.4	0° 65'	9.9985343	16 23.9	16 21.5	60 4.7	59 56.1
15	202 24 58.8	0° 74'	9.9984117	16 18.3	16 14.2	59 44.2	59 29.1
16	203 24 35.3	0° 80'	9.9982888	16 9.3	16 3.8	59 11.3	58 51.1
17	204 24 13.8	0° 83'	9.9981658	15 57.7	15 51.3	58 28.9	58 5.4
18	205 23 54.3	0° 83'	9.9980427	15 44.7	15 37.9	57 41.0	57 16.2
19	206 23 36.6	0° 79'	9.9979196	15 31.2	15 24.7	56 51.7	56 27.8
20	207 23 20.8	0° 73'	9.9977967	15 18.5	15 12.6	56 5.0	55 43.6
21	208 23 6.7	0° 65'	9.9976740	15 7.3	15 2.5	55 24.1	55 6.6
22	209 22 54.3	0° 55'	9.9975517	14 58.3	14 54.9	54 51.3	54 38.5
23	210 22 43.6	0° 44'	9.9974300	14 52.0	14 49.9	54 28.2	54 20.5
24	211 22 34.6	0° 33'	9.9973090	14 48.5	14 47.8	54 15.3	54 12.8
25	212 22 27.2	0° 22'	9.9971889	14 47.8	14 48.5	54 12.8	54 15.2
26	213 22 21.5	N. 0° 10'	9.9970697	14 49.8	14 51.7	54 19.9	54 26.8
27	214 22 17.4	S. 0° 01'	9.9969516	14 54.1	14 57.0	54 35.6	54 46.2
28	215 22 15.0	0° 12'	9.9968348	15 0.3	15 3.9	54 58.4	55 11.8
29	216 22 14.5	0° 20'	9.9967195	15 7.9	15 12.1	55 26.3	55 41.6
30	217 22 15.7	0° 27'	9.9966056	15 16.4	15 20.8	55 57.4	56 13.6
31	218 22 18.7	0° 31'	9.9964933	15 25.2	15 29.6	56 29.8	56 45.8
32	219 22 23.6	S. 0° 33'	9.9963825	15 33.9	15 38.0	57 1.5	57 16.6

MEAN TIME.

THE MOON'S

Day of the Week.	Day of the Month.								
		Longitude.		Latitude.		Age.	Meridian Passage.		
		Noon.	Midnight.	Noon.	Midnight.				
Thur.	1	0 48 57.8	10 58 26.0	S. 3 16 50.6	S. 3 41 15.9	14.9	12 2.2		
Frid.	2	17 10 52.1	23 26 21.2	4 3 14.2	4 22 26.6	15.9	12 46.8		
Sat.	3	29 44 56.2	36 6 38.7	4 38 35.7	4 51 25.2	16.9	13 32.8		
Sun.	4	42 31 29.4	48 59 28.4	5 0 41.1	5 6 11.3	17.9	14 20.7		
Mon.	5	55 30 35.8	62 4 51.7	5 7 46.4	5 5 19.6	18.9	15 11.0		
Tues.	6	68 42 16.8	75 22 52.9	4 58 47.5	4 48 9.2	19.9	16 3.8		
Wed.	7	82 6 42.1	88 53 47.2	4 33 27.6	4 14 49.0	20.9	16 58.9		
Thur.	8	95 44 11.1	102 37 56.9	3 52 23.5	3 26 24.8	21.9	17 55.5		
Frid.	9	109 35 6.0	116 35 38.8	2 57 10.6	2 25 2.9	22.9	18 52.9		
Sat.	10	123 39 32.6	130 46 41.3	1 50 27.2	S. 1 13 53.5	23.9	19 49.9		
Sun.	11	137 56 54.1	145 9 54.2	S. 0 35 55.3	N. 0 2 50.4	24.9	20 46.1		
Mon.	12	152 25 19.4	159 42 40.1	N. 0 41 44.4	1 20 5.2	25.9	21 41.0		
Tues.	13	167 1 20.6	174 20 38.8	1 57 11.2	2 32 21.6	26.9	22 34.7		
Wed.	14	181 39 47.2	188 57 54.9	3 4 57.4	3 34 23.8	27.9	23 27.7		
Thur.	15	196 14 8.8	203 27 36.1	4 0 10.9	4 21 54.6	28.9	6		
Frid.	16	210 37 26.7	217 42 54.3	4 39 17.4	4 52 9.0	0.5	0 20.2		
Sat.	17	224 43 19.7	231 38 10.7	5 0 25.7	5 4 9.7	1.5	1 12.5		
Sun.	18	238 27 4.7	245 9 47.6	5 3 28.9	4 58 35.5	2.5	2 4.8		
Mon.	19	251 46 15.0	258 16 31.0	4 49 45.0	4 37 15.3	3.5	2 56.9		
Tues.	20	264 40 48.1	270 59 26.1	4 21 25.8	4 2 36.7	4.5	3 48.5		
Wed.	21	277 12 50.2	283 21 31.4	3 41 8.3	3 17 20.5	5.5	4 39.1		
Thur.	22	289 26 4.5	295 27 7.2	2 51 33.0	2 24 4.5	6.5	5 28.4		
Frid.	23	301 25 19.2	307 21 21.6	1 55 13.7	1 25 17.9	7.5	6 16.1		
Sat.	24	313 15 56.1	319 9 44.0	N. 0 54 34.8	N. 0 23 21.1	8.5	7 2.1		
Sun.	25	325 3 25.8	330 57 40.8	S. 0 8 6.0	S. 0 39 29.1	9.5	7 46.9		
Mon.	26	336 53 6.3	342 50 17.2	1 10 31.1	1 40 54.0	10.5	8 30.7		
Tues.	27	348 49 45.2	354 51 58.8	2 10 19.1	2 38 27.7	11.5	9 14.0		
Wed.	28	0 57 22.7	7 6 16.9	3 5 0.1	3 29 36.4	12.5	9 57.6		
Thur.	29	13 18 57.4	19 35 34.7	3 51 56.4	4 11 40.8	13.5	10 42.0		
Frid.	30	25 56 15.1	32 20 59.1	4 28 29.7	4 42 5.2	14.5	11 27.9		
Sat.	31	38 49 43.4	45 22 19.6	4 52 10.7	4 58 31.9	15.5	12 15.8		
Sun.	32	51 58 36.3	58 38 19.2	S. 5 0 57.1	S. 4 59 18.3	16.5	13 6.3		

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 1.				SATURDAY 3.			
0	h m s	° ' "	"	0	h m s	° ' "	"
0	22 53 12	S. 1 5 47.8	101.92	0	1 57 15.78	N. 7 2 28.9	98.38
1	24 48 97	0 55 36.0	102.02	1	59 16 85	7 12 19.6	98.32
2	26 44 88	0 45 23.5	102.12	2	1 18 09	7 22 8.8	98.06
3	28 40 84	0 35 10.5	102.21	3	3 19 50	7 31 56.3	97.77
4	30 36 86	0 24 56.9	102.30	4	5 21 07	7 41 42.0	97.48
5	32 32 95	0 14 42.9	102.38	5	7 22 81	7 51 26.0	97.19
6	34 29 10	S. 0 4 28.4	102.45	6	9 24 72	8 1 8.3	96.89
7	36 25 31	N. 0 5 46.5	102.51	7	11 26 81	8 10 48.7	96.57
8	38 21 59	0 16 1.7	102.56	8	13 29 07	8 20 27.1	96.24
9	40 17 95	0 26 17.3	102.61	9	15 31 51	8 30 3.6	95.91
10	42 14 38	0 36 33.1	102.65	10	17 34 13	8 39 38.1	95.58
11	44 10 88	0 46 49.1	102.68	11	19 36 93	8 49 10.5	95.23
12	46 7 46	0 57 5.3	102.71	12	21 39 91	8 58 40.8	94.87
13	48 4 12	1 7 21.6	102.73	13	23 43 08	9 8 8.9	94.50
14	50 0 87	1 17 38.1	102.75	14	25 46 44	9 17 34.8	94.13
15	51 57 70	1 27 54.6	102.75	15	27 49 98	9 26 58.5	93.75
16	53 54 61	1 38 11.1	102.75	16	29 53 72	9 36 19.8	93.35
17	55 51 62	1 48 27.6	102.74	17	31 57 65	9 45 38.7	92.95
18	57 48 72	1 58 44.0	102.72	18	34 1 77	9 54 55.2	92.54
19	59 45 91	2 9 0.2	102.69	19	36 6 09	10 4 9.2	92.12
20	1 1 43 20	2 19 16.3	102.66	20	38 10 61	10 13 20.7	91.70
21	3 40 59	2 29 32.2	102.63	21	40 15 33	10 22 29.6	91.27
22	5 38 08	2 39 47.8	102.58	22	42 20 24	10 31 35.9	90.83
23	7 35 67	N. 2 50 3.1	102.52	23	44 25 36	N. 10 40 39.5	90.37
FRIDAY 2.				SUNDAY 4.			
0	1 9 33 37	N. 3 0 18.0	102.45	0	2 46 30 69	N. 10 49 40.3	89.90
1	11 31 18	3 10 32.5	102.38	1	2 48 36 22	10 58 38.3	89.43
2	13 29 10	3 20 46.6	102.31	2	50 41 06	11 7 33.5	88.95
3	15 27 13	3 31 0.2	102.22	3	52 47 91	11 16 25.7	88.46
4	17 25 27	3 41 13.3	102.13	4	54 54 07	11 25 15.0	87.96
5	19 23 54	3 51 25.8	102.03	5	57 0 44	11 34 1.3	87.46
6	21 21 92	4 1 37.7	101.92	6	59 7 02	11 42 44.5	86.94
7	23 20 42	4 11 48.9	101.80	7	3 13 82	11 51 24.6	86.41
8	25 19 05	4 21 59.3	101.68	8	3 20 83	12 0 1.5	85.88
9	27 17 80	4 32 9.0	101.55	9	3 5 28 07	12 8 35.2	85.34
10	29 16 69	4 42 17.9	101.41	10	3 7 35 52	12 17 5.6	84.79
11	31 15 70	4 52 25.9	101.26	11	3 9 43 19	12 25 32.7	84.23
12	33 14 85	5 2 33.0	101.10	12	3 11 51 08	12 33 56.3	83.65
13	35 14 13	5 12 39.1	100.93	13	3 13 59 20	12 42 16.5	83.07
14	37 13 55	5 22 44.2	100.76	14	3 16 7 54	12 50 33.2	82.48
15	39 13 11	5 32 48.3	100.58	15	3 18 16 10	12 58 46.3	81.88
16	41 12 81	5 42 51.2	100.39	16	3 20 24 89	13 6 55.8	81.28
17	43 12 65	5 52 53.0	100.20	17	3 22 33 91	13 15 1.7	80.67
18	45 12 64	6 2 53.6	99.99	18	3 24 43 15	13 23 3.8	80.04
19	47 12 78	6 12 52.9	99.77	19	3 26 52 63	13 31 2.2	79.41
20	49 13 07	6 22 50.9	99.55	20	3 29 2 33	13 38 56.7	78.76
21	51 13 51	6 32 47.5	99.32	21	3 31 12 26	13 46 47.3	78.11
22	53 14 11	6 42 42.8	99.09	22	3 33 22 43	13 54 34.0	77.45
23	55 14 87	6 52 36.6	98.84	23	3 35 32 82	14 2 16.7	76.78
24	57 15 78	N. 7 2 28.9	98.58	24	3 37 43 45	N. 14 9 55.4	76.11

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
MONDAY 5.				WEDNESDAY 7.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	3 37 43.45	N. 14 9 55.4	76.11	0	5 26 47.29	N. 18 40 10.1	33.31
1	3 39 54.31	14 17 30.0	75.42	1	5 29 9.02	18 43 26.7	32.22
2	3 42 5.41	14 25 0.4	74.72	2	5 31 30.94	18 46 36.7	31.13
3	3 44 16.74	14 32 26.6	74.01	3	5 33 53.05	18 49 40.2	30.03
4	3 46 28.31	14 39 48.5	73.29	4	5 36 15.36	18 52 37.1	28.93
5	3 48 40.11	14 47 6.1	72.56	5	5 38 37.85	18 55 27.4	27.82
6	3 50 52.14	14 54 19.3	71.83	6	5 41 0.53	18 58 11.0	26.71
7	3 53 4.42	15 1 28.1	71.09	7	5 43 23.38	19 0 47.9	25.59
8	3 55 16.93	15 8 32.4	70.34	8	5 45 46.42	19 3 18.1	24.46
9	3 57 29.67	15 15 32.2	69.57	9	5 48 9.64	19 5 41.4	23.33
10	3 59 42.65	15 22 27.3	68.80	10	5 50 33.02	19 7 58.0	22.19
11	4 1 55.87	15 29 17.8	68.02	11	5 52 56.58	19 10 7.7	21.04
12	4 4 9.33	15 36 3.6	67.23	12	5 55 20.31	19 12 10.5	19.89
13	4 6 23.02	15 42 44.6	66.44	13	5 57 44.20	19 14 6.4	18.74
14	4 8 36.95	15 49 20.9	65.64	14	6 0 8.26	19 15 55.4	17.58
15	4 10 51.12	15 55 52.3	64.82	15	6 2 32.48	19 17 37.4	16.42
16	4 13 5.52	16 2 18.7	63.99	16	6 4 56.85	19 19 12.4	15.25
17	4 15 20.16	16 8 40.2	63.16	17	6 7 21.38	19 20 40.4	14.08
18	4 17 35.04	16 14 56.7	62.33	18	6 9 46.06	19 22 1.3	12.89
19	4 19 50.15	16 21 8.1	61.48	19	6 12 10.88	19 23 15.1	11.71
20	4 22 5.50	16 27 14.4	60.62	20	6 14 35.85	19 24 21.8	10.52
21	4 24 21.08	16 33 15.5	59.75	21	6 17 0.96	19 25 21.4	9.33
22	4 26 36.90	16 39 11.4	58.88	22	6 19 26.21	19 26 13.8	8.13
23	4 28 52.95	N. 16 45 2.1	58.00	23	6 21 51.60	N. 19 26 59.0	6.93
TUESDAY 6.				THURSDAY 8.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	4 31 9.23	N. 16 50 47.4	57.10	0	6 24 17.11	N. 19 27 37.0	5.73
1	4 33 25.75	16 56 27.3	56.20	1	6 26 42.75	19 28 7.7	4.52
2	4 35 42.50	17 2 1.8	55.30	2	6 29 8.52	19 28 31.2	3.31
3	4 37 59.48	17 7 30.9	54.38	3	6 31 34.41	19 28 47.5	2.10
4	4 40 16.69	17 12 54.4	53.45	4	6 34 0.42	19 28 56.4	0.88
5	4 42 34.13	17 18 12.3	52.52	5	6 36 26.54	19 28 58.0	0.34
6	4 44 51.80	17 23 24.6	51.58	6	6 38 52.77	19 28 52.3	1.56
7	4 47 9.69	17 28 31.2	50.63	7	6 41 19.11	19 28 39.3	2.78
8	4 49 27.81	17 33 32.1	49.68	8	6 43 45.55	19 28 18.9	4.01
9	4 51 46.16	17 38 27.3	48.71	9	6 46 12.09	19 27 51.1	5.25
10	4 54 4.73	17 43 16.6	47.73	10	6 48 38.72	19 27 15.9	6.48
11	4 56 23.52	17 48 0.1	46.75	11	6 51 5.45	19 26 33.4	7.71
12	4 58 42.53	17 52 37.6	45.75	12	6 53 32.27	19 25 43.4	8.95
13	5 1 1.76	17 57 9.1	44.76	13	6 55 59.17	19 24 46.0	10.18
14	5 3 21.21	18 1 34.7	43.76	14	6 58 26.15	19 23 41.2	11.42
15	5 5 40.87	18 5 54.2	42.74	15	7 0 53.21	19 22 29.0	12.66
16	5 8 0.75	18 10 7.6	41.72	16	7 3 20.34	19 21 9.3	13.90
17	5 10 20.85	18 14 14.8	40.69	17	7 5 47.55	19 19 42.2	15.14
18	5 12 41.15	18 18 15.9	39.66	18	7 8 14.82	19 18 7.6	16.39
19	5 15 1.66	18 22 10.7	38.62	19	7 10 42.15	19 16 25.5	17.63
20	5 17 22.38	18 25 59.3	37.58	20	7 13 9.54	19 14 36.0	18.87
21	5 19 43.30	18 29 41.6	36.52	21	7 15 36.98	19 12 39.1	20.12
22	5 22 4.43	18 33 17.5	35.45	22	7 18 4.48	19 10 34.6	21.36
23	5 24 25.76	18 36 47.0	34.38	23	7 20 32.02	19 8 22.7	22.60
24	5 26 47.29	N. 18 40 10.1	33.31	24	7 22 59.61	N. 19 6 3.4	23.84

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 9.				SUNDAY 11.			
0	^h 7 ^m 22 ^s 59 ⁶ .1	N. 19° 6' 3".4	23 ⁸ .4	0	^h 9 ^m 20 ^s 48 ⁴ .8	N. 14° 53' 30".0	79 ⁴ .7
1	7 25 27.24	19 3 36.6	25 ⁰ .9	1	9 23 14.24	14 45 30.1	80 ⁴ .7
2	7 27 54.90	19 1 2.3	26 ³ .4	2	9 25 39 ⁸ .9	14 37 24.3	81 ⁴ .6
3	7 30 22.60	18 58 20.5	27 ⁵ .8	3	9 28 5 ⁴ .5	14 29 12.5	82 ⁴ .5
4	7 32 50 ³ .3	18 55 31.4	28 ⁸ .1	4	9 30 30 ⁹ .0	14 20 54.9	83 ⁴ .3
5	7 35 18.08	18 52 34.8	30 ⁰ .6	5	9 32 56 ² .5	14 12 31.4	84 ⁴ .3
6	7 37 45 ⁸ .6	18 49 30.7	31 ² .9	6	9 35 21 ⁴ .9	14 4 2.2	85 ⁴ .3
7	7 40 13.65	18 46 19.3	32 ⁵ .2	7	9 37 46 ⁶ .3	13 55 27.3	86 ⁴ .9
8	7 42 41 ⁴ .5	18 43 0.4	33 ⁷ .6	8	9 40 11 ⁶ .6	13 46 46.7	87 ⁴ .2
9	7 45 9.27	18 39 34.1	34 ⁹ .9	9	9 42 36 ⁵ .8	13 38 0.6	88 ⁴ .15
10	7 47 37.10	18 36 0.5	36 ² .2	10	9 45 1 ³ .39	13 29 8.9	89 ⁴ .07
11	7 50 4 ⁹ .3	18 32 19.5	37 ⁴ .5	11	9 47 26 ⁰ .9	13 20 11.8	89 ⁴ .97
12	7 52 32.76	18 28 31.1	38 ⁶ .7	12	9 49 50 ⁶ .8	13 11 9.3	90 ⁴ .86
13	7 55 0 ⁵ .9	18 24 35.4	39 ⁸ .9	13	9 52 15 ¹ .6	13 2 1.5	91 ⁴ .74
14	7 57 28.41	18 20 32.4	41 ¹ .1	14	9 54 39 ⁵ .3	12 52 48.4	92 ⁴ .62
15	7 59 56 ² .2	18 16 22.1	42 ³ .3	15	9 57 3 ⁷ .8	12 43 30.1	93 ⁴ .48
16	8 2 24.02	18 12 4.5	43 ⁵ .4	16	9 59 27 ⁹ .1	12 34 6.7	94 ⁴ .33
17	8 4 51.80	18 7 39.6	44 ⁷ .5	17	10 1 51 ⁹ .3	12 24 38.2	95 ⁴ .17
18	8 7 19.56	18 3 7.5	45 ⁹ .5	18	10 4 15 ⁸ .4	12 15 4.7	95 ⁴ .99
19	8 9 47.29	17 58 28.2	47 ¹ .5	19	10 6 39 ⁶ .3	12 5 26.3	96 ⁴ .80
20	8 12 15.00	17 53 41.7	48 ³ .5	20	10 9 3 ³ .0	11 55 43.1	97 ⁴ .61
21	8 14 42.68	17 48 48.0	49 ⁵ .4	21	10 11 26 ⁸ .6	11 45 55.0	98 ⁴ .41
22	8 17 10 ³ .3	17 43 47.2	50 ⁷ .3	22	10 13 50 ³ .0	11 36 2.2	99 ⁴ .18
23	8 19 37 ⁹ .4	N. 17° 38' 39".3	51 ⁹ .2	23	10 16 13 ⁶ .2	N. 11° 26' 4".8	99 ⁴ .95
SATURDAY 10.				MONDAY 12.			
0	8 22 5 ⁵ .0	N. 17° 33' 24".2	53 ¹ .0	0	10 18 36 ⁸ .3	N. 11° 16' 2".8	100 ⁴ .71
1	8 24 33 ⁰ .3	17 28 2.1	54 ² .7	1	10 20 59 ⁹ .2	11 5 56.3	101 ⁴ .46
2	8 27 0 ⁵ .2	17 22 33.0	55 ⁴ .3	2	10 23 22 ⁸ .9	10 55 45.3	102 ⁴ .19
3	8 29 27.95	17 16 56.9	56 ⁶ .0	3	10 25 45 ⁷ .4	10 45 30.0	102 ⁴ .91
4	8 31 55 ³ .4	17 11 13.8	57 ⁷ .6	4	10 28 8 ⁴ .7	10 35 10.4	103 ⁴ .62
5	8 34 22.67	17 5 23.8	58 ⁹ .1	5	10 30 31 ⁰ .9	10 24 46.6	104 ⁴ .31
6	8 36 49 ⁹ .5	16 59 26.9	60 ⁰ .6	6	10 32 53 ⁵ .9	10 14 18.7	104 ⁴ .99
7	8 39 17 ¹ .6	16 53 23.1	61 ² .0	7	10 35 15 ⁹ .7	10 3 46.7	105 ⁴ .67
8	8 41 44 ³ .2	16 47 12.5	62 ³ .3	8	10 37 38 ² .3	9 53 10.7	106 ⁴ .33
9	8 44 11 ⁴ .1	16 40 55.2	63 ⁴ .5	9	10 40 0 ³ .8	9 42 30.7	106 ⁴ .98
10	8 46 38 ⁴ .4	16 34 31.1	64 ⁵ .7	10	10 42 22 ⁴ .1	9 31 46.9	107 ⁴ .61
11	8 49 5 ³ .9	16 28 0.3	65 ⁶ .9	11	10 44 44 ³ .2	9 20 59.4	108 ⁴ .23
12	8 51 32 ² .8	16 21 22.8	66 ⁸ .0	12	10 47 6 ⁶ .1	9 10 8.2	108 ⁴ .83
13	8 53 59 ⁰ .9	16 14 38.7	67 ⁹ .0	13	10 49 27 ⁷ .9	8 59 13.4	109 ⁴ .42
14	8 56 25 ⁸ .2	16 7 48.0	68 ⁹ .9	14	10 51 49 ³ .6	8 48 15.1	110 ⁴ .01
15	8 58 52 ⁴ .8	16 0 50.8	70 ⁰ .7	15	10 54 10 ⁸ .1	8 37 13.3	110 ⁴ .58
16	9 1 19 ⁰ .5	15 53 47.2	71 ¹ .4	16	10 56 32 ¹ .5	8 26 8.2	111 ⁴ .13
17	9 3 45 ⁵ .4	15 46 37.1	72 ² .2	17	10 58 53 ³ .8	8 14 59.8	111 ⁴ .67
18	9 6 11 ⁹ .5	15 39 20.5	73 ² .9	18	11 1 14 ⁴ .9	8 3 48.2	112 ⁴ .20
19	9 8 38 ² .7	15 31 57.6	74 ³ .3	19	11 3 35 ⁴ .9	7 52 33.4	112 ⁴ .72
20	9 11 4 ⁵ .0	15 24 28.5	75 ³ .7	20	11 5 56 ³ .8	7 41 15.6	113 ⁴ .22
21	9 13 30 ⁶ .3	15 16 53.1	76 ⁴ .1	21	11 8 17 ¹ .6	7 29 54.8	113 ⁴ .70
22	9 15 56 ⁶ .8	15 9 11.5	77 ⁴ .4	22	11 10 37 ⁸ .4	7 18 31.2	114 ⁴ .17
23	9 18 22 ⁶ .3	15 1 23.8	78 ⁴ .6	23	11 12 58 ⁴ .0	7 7 4.8	114 ⁴ .63
24	9 20 48 ⁴ .8	N. 14° 53' 30".0	79 ⁴ .7	24	11 15 18 ⁸ .6	N. 6° 55' 35".6	115 ⁴ .08

MEAN TIME.							
THE MOON'S RIGHT ASCENSION AND DECLINATION.							
Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 13.				THURSDAY 15.			
0	^h 11 ^m 15 ^s 18.86	N. 6 55 35.6	115.08	0	^h 13 ^m 5 59.25	S. 2 41 31.8	120.00
1	11 17 39.21	6 44 3.8	115.51	1	13 8 16.06	2 53 31.1	119.77
2	11 19 59.46	6 32 29.5	115.93	2	13 10 32.83	3 5 29.0	119.52
3	11 22 19.60	6 20 52.7	116.33	3	13 12 49.56	3 17 25.3	119.25
4	11 24 39.64	6 9 13.5	116.72	4	13 15 6.25	3 29 20.0	118.97
5	11 26 59.58	5 57 32.0	117.10	5	13 17 22.92	3 41 12.9	118.68
6	11 29 19.42	5 45 48.3	117.47	6	13 19 39.55	3 53 4.1	118.38
7	11 31 39.15	5 34 2.4	117.82	7	13 21 56.14	4 4 53.5	118.07
8	11 33 58.79	5 22 14.5	118.15	8	13 24 12.71	4 16 41.0	117.75
9	11 36 18.33	5 10 24.6	118.47	9	13 26 29.25	4 28 26.5	117.41
10	11 38 37.78	4 58 32.9	118.77	10	13 28 45.76	4 40 9.9	117.05
11	11 40 57.13	4 46 39.4	119.06	11	13 31 2.25	4 51 51.1	116.68
12	11 43 16.38	4 34 44.1	119.35	12	13 33 18.71	5 3 30.1	116.31
13	11 45 35.54	4 22 47.2	119.61	13	13 35 35.15	5 15 6.8	115.92
14	11 47 54.61	4 10 48.8	119.86	14	13 37 51.56	5 26 41.2	115.53
15	11 50 13.59	3 58 48.9	120.10	15	13 40 7.95	5 38 13.1	115.11
16	11 52 32.49	3 46 47.6	120.32	16	13 42 24.32	5 49 42.5	114.68
17	11 54 51.29	3 34 45.0	120.53	17	13 44 40.67	6 1 9.3	114.25
18	11 57 10.01	3 22 41.3	120.72	18	13 46 57.01	6 12 33.5	113.80
19	11 59 28.65	3 10 36.4	120.90	19	13 49 13.32	6 23 54.9	113.33
20	12 1 47.20	2 58 30.5	121.07	20	13 51 29.62	6 35 13.5	112.86
21	12 4 5.68	2 46 23.6	121.22	21	13 53 45.90	6 46 29.3	112.38
22	12 6 24.07	2 34 15.9	121.35	22	13 56 2.17	6 57 42.1	111.88
23	12 8 42.39	N. 2 22 7.4	121.47	23	13 58 18.42	S. 7 8 51.9	111.37
WEDNESDAY 14.				FRIDAY 16.			
0	12 11 0.63	N. 2 9 58.2	121.58	0	14 0 34.66	S. 7 19 58.6	110.86
1	12 13 18.79	1 57 48.4	121.68	1	14 2 50.89	7 31 2.2	110.33
2	12 15 36.88	1 45 38.1	121.76	2	14 5 7.11	7 42 2.5	109.78
3	12 17 54.90	1 33 27.3	121.83	3	14 7 23.31	7 52 59.5	109.22
4	12 20 12.85	1 21 16.2	121.88	4	14 9 39.51	8 3 53.2	108.66
5	12 22 30.73	1 9 4.8	121.92	5	14 11 55.70	8 14 43.5	108.09
6	12 24 48.54	0 56 53.2	121.94	6	14 14 11.88	8 25 30.3	107.51
7	12 27 6.29	0 44 41.5	121.95	7	14 16 28.05	8 36 13.6	106.92
8	12 29 23.97	0 32 29.8	121.94	8	14 18 44.21	8 46 53.3	106.31
9	12 31 41.59	0 20 18.2	121.92	9	14 21 0.37	8 57 29.3	105.69
10	12 33 59.14	N. 0 8 6.7	121.89	10	14 23 16.52	9 8 1.6	105.07
11	12 36 16.64	S. 0 4 4.5	121.84	11	14 25 32.66	9 18 30.1	104.43
12	12 38 34.07	0 16 15.4	121.78	12	14 27 48.80	9 28 54.7	103.78
13	12 40 51.45	0 28 25.9	121.71	13	14 30 4.94	9 39 15.4	103.13
14	12 43 8.77	0 40 36.0	121.63	14	14 32 21.07	9 49 32.2	102.46
15	12 45 26.04	0 52 45.5	121.53	15	14 34 37.20	9 59 44.9	101.78
16	12 47 43.26	1 4 54.3	121.41	16	14 36 53.32	10 9 53.6	101.10
17	12 50 0.42	1 17 2.4	121.28	17	14 39 9.45	10 19 58.1	100.40
18	12 52 17.53	1 29 9.7	121.14	18	14 41 25.57	10 29 58.4	99.70
19	12 54 34.60	1 41 16.1	120.98	19	14 43 41.68	10 39 54.5	98.98
20	12 56 51.62	1 53 21.5	120.82	20	14 45 57.79	10 49 46.2	98.26
21	12 59 8.59	2 5 25.9	120.63	21	14 48 13.91	10 59 33.6	97.53
22	13 1 25.52	2 17 29.1	120.43	22	14 50 30.02	11 9 16.6	96.79
23	13 3 42.41	2 29 31.1	120.22	23	14 52 46.12	11 18 55.1	96.03
24	13 5 59.25	S. 2 41 31.8	120.00	24	14 55 2.23	S. 11 28 29.0	95.28

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 17.				MONDAY 19.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	14 55 2.23	S. 11 28 29.0	95.28	0	16 43 43.51	S. 17 25 32.9	51.48
1	14 57 18.33	11 37 58.4	94.52	1	16 45 58.76	17 30 38.7	50.47
2	14 59 34.43	11 47 23.2	93.75	2	16 48 13.97	17 35 38.5	49.45
3	15 1 50.52	11 56 43.4	92.97	3	16 50 29.12	17 40 32.1	48.43
4	15 4 6.61	12 5 58.8	92.17	4	16 52 44.23	17 45 19.6	47.41
5	15 6 22.70	12 15 9.4	91.37	5	16 54 59.28	17 50 1.0	46.39
6	15 8 38.79	12 24 15.3	90.57	6	16 57 14.28	17 54 36.3	45.37
7	15 10 54.87	12 33 16.3	89.76	7	16 59 29.23	17 59 5.5	44.35
8	15 13 10.95	12 42 12.4	88.93	8	17 1 44.12	18 3 28.5	43.32
9	15 15 27.03	12 51 3.5	88.11	9	17 3 58.95	18 7 45.3	42.29
10	15 17 43.10	12 59 49.7	87.28	10	17 6 13.73	18 11 56.0	41.26
11	15 19 59.17	13 8 30.8	86.43	11	17 8 28.44	18 16 0.5	40.24
12	15 22 15.23	13 17 6.8	85.58	12	17 10 43.09	18 19 58.9	39.21
13	15 24 31.29	13 25 37.7	84.73	13	17 12 57.68	18 23 51.1	38.18
14	15 26 47.34	13 34 3.5	83.87	14	17 15 12.19	18 27 37.1	37.15
15	15 29 3.38	13 42 24.1	82.99	15	17 17 26.64	18 31 16.9	36.12
16	15 31 19.42	13 50 39.4	82.12	16	17 19 41.03	18 34 50.5	35.08
17	15 33 35.45	13 58 49.5	81.23	17	17 21 55.34	18 38 17.9	34.05
18	15 35 51.47	14 6 54.2	80.34	18	17 24 9.57	18 41 39.1	33.02
19	15 38 7.49	14 14 53.6	79.45	19	17 26 23.73	18 44 54.2	32.00
20	15 40 23.49	14 22 47.6	78.55	20	17 28 37.82	18 48 3.1	30.97
21	15 42 39.48	14 30 36.2	77.64	21	17 30 51.83	18 51 5.8	29.93
22	15 44 55.46	14 38 19.3	76.73	22	17 33 5.76	18 54 2.3	28.90
23	15 47 11.43	S. 14 45 57.0	75.81	23	17 35 19.61	S. 18 56 52.6	27.86
SUNDAY 18.				TUESDAY 20.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	15 49 27.39	S. 14 53 29.1	74.89	0	17 37 33.37	S. 18 59 36.7	26.83
1	15 51 43.33	15 0 55.7	73.96	1	17 39 47.05	19 2 14.6	25.81
2	15 53 59.26	15 8 16.7	73.02	2	17 42 0.64	19 4 46.4	24.78
3	15 56 15.17	15 15 32.0	72.08	3	17 44 14.15	19 7 12.0	23.75
4	15 58 31.06	15 22 41.7	71.15	4	17 46 27.56	19 9 31.4	22.72
5	16 0 46.93	15 29 45.8	70.21	5	17 48 40.88	19 11 44.7	21.70
6	16 3 2.79	15 36 44.2	69.25	6	17 50 54.11	19 13 51.8	20.68
7	16 5 18.62	15 43 36.8	68.29	7	17 53 7.25	19 15 52.8	19.65
8	16 7 34.43	15 50 23.7	67.33	8	17 55 20.28	19 17 47.6	18.63
9	16 9 50.22	15 57 4.8	66.37	9	17 57 33.22	19 19 36.3	17.61
10	16 12 5.99	16 3 40.1	65.39	10	17 59 46.06	19 21 18.9	16.59
11	16 14 21.73	16 10 9.5	64.42	11	18 1 58.80	19 22 55.4	15.58
12	16 16 37.45	16 16 33.1	63.45	12	18 4 11.43	19 24 25.8	14.56
13	16 18 53.14	16 22 50.9	62.47	13	18 6 23.96	19 25 50.1	13.54
14	16 21 8.80	16 29 2.7	61.48	14	18 8 36.38	19 27 8.3	12.53
15	16 23 24.43	16 35 8.6	60.49	15	18 10 48.69	19 28 20.4	11.51
16	16 25 40.03	16 41 8.6	59.51	16	18 13 0.90	19 29 26.4	10.50
17	16 27 55.59	16 47 2.7	58.52	17	18 15 12.99	19 30 26.4	9.50
18	16 30 11.12	16 52 50.8	57.52	18	18 17 24.97	19 31 20.4	8.50
19	16 32 26.62	16 58 32.9	56.51	19	18 19 36.83	19 32 8.4	7.49
20	16 34 42.08	17 4 8.9	55.51	20	18 21 48.58	19 32 50.3	6.49
21	16 36 57.50	17 9 39.0	54.51	21	18 24 0.21	19 33 26.3	5.50
22	16 39 12.87	17 15 3.0	53.50	22	18 26 11.72	19 33 56.3	4.50
23	16 41 28.21	17 20 21.0	52.49	23	18 28 23.11	19 34 20.3	3.51
24	16 43 43.51	S. 17 25 32.9	51.48	24	18 30 34.37	S. 19 34 38.4	2.52

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 21.				FRIDAY 23.			
0	18 30 34.37	S. 19 34 38.4	2.52	0	20 12 51.93	S. 17 58 54.4	40.93
1	18 32 45.52	19 34 50.5	1.53	1	20 14 56.13	17 54 46.4	41.73
2	18 34 56.54	19 34 56.8	0.55	2	20 17 0.18	17 50 33.6	42.53
3	18 37 7.44	19 34 57.1	0.44	3	20 19 4.08	17 46 16.1	43.32
4	18 39 18.21	19 34 51.5	1.42	4	20 21 7.83	17 41 53.8	44.11
5	18 41 28.85	19 34 40.1	2.38	5	20 23 11.42	17 37 26.8	44.90
6	18 43 39.36	19 34 22.9	3.36	6	20 25 14.87	17 32 55.0	45.68
7	18 45 49.74	19 33 59.8	4.34	7	20 27 18.16	17 28 18.6	46.45
8	18 47 59.99	19 33 30.8	5.31	8	20 29 21.31	17 23 37.6	47.22
9	18 50 10.11	19 32 56.1	6.27	9	20 31 24.30	17 18 52.0	47.99
10	18 52 20.09	19 32 15.6	7.23	10	20 33 27.15	17 14 1.7	48.76
11	18 54 29.93	19 31 29.4	8.18	11	20 35 29.84	17 9 6.9	49.51
12	18 56 39.64	19 30 37.4	9.14	12	20 37 32.39	17 4 7.6	50.26
13	18 58 49.21	19 29 39.7	10.09	13	20 39 34.79	16 59 3.8	51.02
14	19 0 58.65	19 28 36.3	11.04	14	20 41 37.04	16 53 55.4	51.76
15	19 3 7.94	19 27 27.2	11.98	15	20 43 39.15	16 48 42.6	52.49
16	19 5 17.09	19 26 12.5	12.92	16	20 45 41.11	16 43 25.5	53.23
17	19 7 26.11	19 24 52.1	13.86	17	20 47 42.93	16 38 3.9	53.96
18	19 9 34.98	19 23 26.1	14.79	18	20 49 44.60	16 32 38.0	54.68
19	19 11 43.70	19 21 54.6	15.73	19	20 51 46.13	16 27 7.7	55.41
20	19 13 52.29	19 20 17.4	16.66	20	20 53 47.52	16 21 33.1	56.12
21	19 16 0.73	19 18 34.7	17.58	21	20 55 48.76	16 15 54.3	56.83
22	19 18 9.02	19 16 46.5	18.49	22	20 57 49.87	16 10 11.2	57.53
23	19 20 17.17	S. 19 14 52.8	19.41	23	20 59 50.83	S. 16 4 24.0	58.22
THURSDAY 22.				SATURDAY 24.			
0	19 22 25.17	S. 19 12 53.6	20.32	0	21 1 51.65	S. 15 58 32.5	58.92
1	19 24 33.03	19 10 49.0	21.23	1	21 3 52.34	15 52 36.9	59.62
2	19 26 40.73	19 8 38.9	22.13	2	21 5 52.89	15 46 37.1	60.31
3	19 28 48.29	19 6 23.5	23.02	3	21 7 53.31	15 40 33.2	60.98
4	19 30 55.70	19 4 2.7	23.92	4	21 9 53.59	15 34 25.3	61.66
5	19 33 2.95	19 1 36.5	24.81	5	21 11 53.74	15 28 13.3	62.33
6	19 35 10.06	18 59 5.0	25.70	6	21 13 53.75	15 21 57.3	62.99
7	19 37 17.02	18 56 28.1	26.58	7	21 15 53.64	15 15 37.4	63.65
8	19 39 23.82	18 53 46.0	27.46	8	21 17 53.39	15 9 13.5	64.31
9	19 41 30.47	18 50 58.6	28.33	9	21 19 53.02	15 2 45.6	64.97
10	19 43 36.97	18 48 6.0	29.20	10	21 21 52.51	14 56 13.9	65.61
11	19 45 43.32	18 45 8.2	30.06	11	21 23 51.88	14 49 38.3	66.25
12	19 47 49.52	18 42 5.2	30.92	12	21 25 51.13	14 42 58.9	66.88
13	19 49 55.56	18 38 57.1	31.78	13	21 27 50.25	14 36 15.7	67.52
14	19 52 1.45	18 35 43.8	32.64	14	21 29 49.26	14 29 28.6	68.16
15	19 54 7.19	18 32 25.4	33.49	15	21 31 48.14	14 22 37.8	68.78
16	19 56 12.78	18 29 1.9	34.33	16	21 33 46.90	14 15 43.3	69.39
17	19 58 18.21	18 25 33.4	35.17	17	21 35 45.54	14 8 45.1	70.00
18	20 0 23.49	18 21 59.8	36.01	18	21 37 44.07	14 1 43.3	70.61
19	20 2 28.61	18 18 21.2	36.84	19	21 39 42.48	13 54 37.8	71.22
20	20 4 33.58	18 14 37.7	37.66	20	21 41 40.78	13 47 28.7	71.82
21	20 6 38.40	18 10 49.3	38.48	21	21 43 38.97	13 40 16.0	72.41
22	20 8 43.06	18 6 55.9	39.31	22	21 45 37.04	13 32 59.8	73.00
23	20 10 47.57	18 2 57.6	40.13	23	21 47 35.01	13 25 40.0	73.58
24	20 12 51.93	S. 17 58 54.4	40.93	24	21 49 32.87	S. 13 18 16.8	74.16

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SUNDAY, 25.				TUESDAY 27.			
0	h m s	S. ° ' "	" "	0	h m s	S. ° ' "	" "
0	21 49 32.87	S. 13 18 16.8	74.16	0	23 22 21.01	S. 6 25 13.2	95.96
1	21 51 30.63	13 10 50.1	74.73	1	23 24 16.01	6 15 36.5	96.28
2	21 53 28.28	13 3 20.0	75.30	2	23 26 11.01	6 5 57.9	96.59
3	21 55 25.82	12 55 46.5	75.87	3	23 28 6.00	5 56 17.4	96.90
4	21 57 23.27	12 48 9.6	76.43	4	23 30 1.00	5 46 35.1	97.21
5	21 59 20.62	12 40 29.3	76.98	5	23 31 56.01	5 36 50.9	97.51
6	22 1 17.87	12 32 45.8	77.53	6	23 33 51.02	5 27 4.9	97.81
7	22 3 15.03	12 24 59.0	78.08	7	23 35 46.04	5 17 17.2	98.10
8	22 5 12.09	12 17 8.9	78.61	8	23 37 41.07	5 7 27.7	98.38
9	22 7 9.06	12 9 15.6	79.14	9	23 39 36.12	4 57 36.6	98.65
10	22 9 5.94	12 1 19.2	79.67	10	23 41 31.18	4 47 43.9	98.93
11	22 11 2.74	11 53 19.6	80.20	11	23 43 26.26	4 37 49.5	99.20
12	22 12 59.45	11 45 16.8	80.72	12	23 45 21.36	4 27 53.5	99.46
13	22 14 56.08	11 37 10.9	81.23	13	23 47 16.49	4 17 56.0	99.71
14	22 16 52.62	11 29 2.0	81.73	14	23 49 11.64	4 7 57.0	99.95
15	22 18 49.08	11 20 50.1	82.24	15	23 51 6.83	3 57 56.6	100.19
16	22 20 45.46	11 12 35.1	82.75	16	23 53 2.04	3 47 54.7	100.43
17	22 22 41.77	11 4 17.1	83.24	17	23 54 57.29	3 37 51.4	100.66
18	22 24 38.01	10 55 56.2	83.72	18	23 56 52.58	3 27 46.7	100.88
19	22 26 34.17	10 47 32.4	84.20	19	23 58 47.91	3 17 40.8	101.10
20	22 28 30.26	10 39 5.8	84.68	20	0 0 43.28	3 7 33.5	101.31
21	22 30 26.28	10 30 36.2	85.16	21	0 2 38.69	2 57 25.0	101.51
22	22 32 22.24	10 22 3.8	85.63	22	0 4 34.14	2 47 15.4	101.71
23	22 34 18.14	S. 10 13 28.7	86.09	23	0 6 29.65	S. 2 37 4.5	101.91
MONDAY 26.				WEDNESDAY 28.			
0	22 36 13.97	S. 10 4 50.7	86.55	0	0 8 25.21	S. 2 26 52.5	102.10
1	22 38 9.74	9 56 10.0	87.00	1	0 10 20.82	2 16 39.4	102.27
2	22 40 5.46	9 47 26.7	87.44	2	0 12 16.49	2 6 25.3	102.43
3	22 42 1.12	9 38 40.7	87.89	3	0 14 12.22	1 56 10.2	102.60
4	22 43 56.72	9 29 52.0	88.34	4	0 16 8.01	1 45 54.1	102.76
5	22 45 52.27	9 21 0.7	88.77	5	0 18 3.87	1 35 37.1	102.91
6	22 47 47.78	9 12 6.8	89.19	6	0 19 59.79	1 25 19.2	103.06
7	22 49 43.24	9 3 10.4	89.61	7	0 21 55.78	1 15 0.4	103.20
8	22 51 38.65	8 54 11.5	90.02	8	0 23 51.85	1 4 40.8	103.33
9	22 53 34.02	8 45 10.1	90.43	9	0 25 47.99	0 54 20.5	103.45
10	22 55 29.35	8 36 6.3	90.84	10	0 27 44.21	0 43 59.4	103.57
11	22 57 24.64	8 27 0.0	91.24	11	0 29 40.51	0 33 37.6	103.69
12	22 59 19.90	8 17 51.4	91.63	12	0 31 36.89	0 23 15.1	103.80
13	23 1 15.12	8 8 40.4	92.03	13	0 33 33.36	0 12 52.0	103.89
14	23 3 10.31	7 59 27.1	92.42	14	0 35 29.91	S. 0 2 28.4	103.98
15	23 5 5.47	7 50 11.4	92.80	15	0 37 26.56	N. 0 7 55.7	104.07
16	23 7 0.61	7 40 53.5	93.16	16	0 39 23.30	0 18 20.4	104.15
17	23 8 55.72	7 31 33.5	93.53	17	0 41 20.14	0 28 45.5	104.21
18	23 10 50.81	7 22 11.2	93.90	18	0 43 17.07	0 39 10.9	104.27
19	23 12 45.88	7 12 46.7	94.26	19	0 45 14.10	0 49 36.7	104.33
20	23 14 40.93	7 3 20.1	94.61	20	0 47 11.24	1 0 2.8	104.38
21	23 16 35.97	6 53 51.4	94.95	21	0 49 8.48	1 10 29.2	104.42
22	23 18 30.99	6 44 20.7	95.28	22	0 51 5.84	1 20 55.8	104.45
23	23 20 26.00	6 34 48.0	95.62	23	0 53 3.30	1 31 22.6	104.47
24	23 22 21.01	S. 6 25 13.2	95.96	24	0 55 0.88	N. 1 41 49.4	104.48

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 29.				SATURDAY 31.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	0 55 0.88	N. 1 41 49.4	104.48	0	2 32 5.05	N. 9 49 59.1	95.55
1	0 56 58.57	1 52 16.4	104.50	1	2 34 11.05	9 59 31.2	95.14
2	0 58 56.38	2 2 43.4	104.50	2	2 36 17.26	10 9 0.8	94.72
3	1 0 54.31	2 13 10.4	104.49	3	2 38 23.70	10 18 27.9	94.30
4	1 2 52.37	2 23 37.3	104.48	4	2 40 30.37	10 27 52.4	93.85
5	1 4 50.55	2 34 4.2	104.46	5	2 42 37.26	10 37 14.1	93.40
6	1 6 48.86	2 44 30.9	104.43	6	2 44 44.38	10 46 33.2	92.95
7	1 8 47.30	2 54 57.4	104.40	7	2 46 51.73	10 55 49.5	92.48
8	1 10 45.87	3 5 23.7	104.36	8	2 48 59.31	11 5 2.9	92.00
9	1 12 44.58	3 15 49.7	104.31	9	2 51 7.12	11 14 13.5	91.51
10	1 14 43.43	3 26 15.4	104.24	10	2 53 15.17	11 23 21.1	91.01
11	1 16 42.42	3 36 40.6	104.17	11	2 55 23.45	11 32 25.6	90.49
12	1 18 41.55	3 47 5.4	104.10	12	2 57 31.96	11 41 27.0	89.97
13	1 20 40.83	3 57 29.8	104.02	13	2 59 40.71	11 50 25.3	89.45
14	1 22 40.25	4 7 53.6	103.93	14	3 1 49.70	11 59 20.4	88.92
15	1 24 39.83	4 18 16.9	103.83	15	3 3 58.93	12 8 12.3	88.37
16	1 26 39.56	4 28 39.5	103.72	16	3 6 8.39	12 17 0.8	87.80
17	1 28 39.45	4 39 1.5	103.60	17	3 8 18.10	12 25 45.9	87.23
18	1 30 39.49	4 49 22.7	103.47	18	3 10 28.05	12 34 27.6	86.66
19	1 32 39.69	4 59 43.1	103.33	19	3 12 38.24	12 43 5.8	86.07
20	1 34 40.05	5 10 2.7	103.20	20	3 14 48.67	12 51 40.4	85.46
21	1 36 40.58	5 20 21.5	103.05	21	3 16 59.34	13 0 11.3	84.85
22	1 38 41.28	5 30 39.3	102.88	22	3 19 10.26	13 8 38.6	84.23
23	1 40 42.14	N. 5 40 56.1	102.71	23	3 21 21.42	N. 13 17 2.1	83.60
FRIDAY 30.				SUNDAY, NOV. 1.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	1 42 43.18	N. 5 51 11.9	102.54	0	3 23 32.83	N. 13 25 21.8	82.96
1	1 44 44.39	6 1 26.6	102.35				
2	1 46 45.78	6 11 40.1	102.16				
3	1 48 47.35	6 21 52.5	101.96				
4	1 50 49.09	6 32 3.6	101.74				
5	1 52 51.02	6 42 13.4	101.52				
6	1 54 53.13	6 52 21.9	101.29				
7	1 56 55.43	7 2 28.9	101.05				
8	1 58 57.92	7 12 34.5	100.80				
9	2 1 0.60	7 22 38.5	100.54				
10	2 3 3.47	7 32 41.0	100.38				
11	2 5 6.54	7 42 41.8	100.00				
12	2 7 9.80	7 52 41.0	99.72				
13	2 9 13.26	8 2 38.4	99.42				
14	2 11 16.93	8 12 34.1	99.12				
15	2 13 20.80	8 22 27.9	98.80				
16	2 15 24.87	8 32 19.7	98.48				
17	2 17 29.15	8 42 9.6	98.15				
18	2 19 33.64	8 51 57.5	97.81				
19	2 21 38.34	9 1 43.3	97.46				
20	2 23 43.25	9 11 27.0	97.10				
21	2 25 48.37	9 21 8.5	96.73				
22	2 27 53.71	9 30 47.7	96.34				
23	2 29 59.27	9 40 24.6	95.95				
24	2 32 5.05	N. 9 49 59.1	95.55				

PHASES OF THE MOON.

Oct. 1	○ Full Moon	- - 7 58.1
8	☾ Last Quarter	- 18 13.3
15	● New Moon	- - 11 1.3
22	☽ First Quarter	- 21 42.3
30	○ Full Moon	- - 23 5.3

Oct. 12	☾ Perigee	- - - - 23
24	☾ Apogee	- - - - 18

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
1	α Aquilæ W.	70 2 23	3479	71 23 11	3461	72 44 19	3444	74 5 46	3419
	Fomalhaut W.	36 32 33	3790	37 47 45	3723	39 4 8	3663	40 21 35	3608
	Aldebaran E.	62 58 3	2908	61 25 54	2901	59 53 36	2892	58 21 7	2885
	Mars E.	114 49 53	3124	113 22 11	3115	111 54 20	3106	110 26 18	3098
2	Fomalhaut W.	47 2 20	3392	48 24 46	3358	49 47 50	3326	51 11 31	3297
	α Pegasi W.	34 21 33	4006	35 33 7	3913	36 46 14	3828	38 0 47	3752
	Aldebaran E.	50 36 16	2846	49 2 48	2838	47 29 9	2830	45 55 20	2821
	Pollux E.	94 39 8	2906	93 6 57	2898	91 34 35	2890	90 2 3	2881
	Mars E.	103 3 36	3056	101 34 33	3047	100 5 18	3038	98 35 53	3030
3	Fomalhaut W.	58 17 52	3173	59 44 33	3153	61 11 38	3134	62 39 7	3114
	α Pegasi W.	44 31 18	3465	45 52 21	3420	47 14 15	3380	48 36 54	3342
	Jupiter W.	20 55 1	2753	22 30 30	2743	24 6 13	2732	25 42 10	2723
	Pollux E.	82 16 49	2842	80 43 16	2835	79 9 33	2827	77 35 40	2819
	Mars E.	91 6 9	2987	89 35 40	2977	88 4 59	2969	86 34 8	2961
	Venus E.	114 40 1	3152	113 12 54	3144	111 45 38	3135	110 18 11	3126
4	Fomalhaut W.	70 1 55	3032	71 31 28	3018	73 1 18	3005	74 31 25	2991
	α Pegasi W.	55 40 8	3189	57 6 30	3163	58 33 23	3139	60 0 45	3117
	Jupiter W.	33 45 0	2677	35 22 11	2669	36 59 33	2659	38 37 8	2651
	Pollux E.	69 43 52	2783	68 9 2	2776	66 34 3	2769	64 58 55	2763
	Mars E.	78 57 5	2916	77 25 7	2908	75 52 58	2898	74 20 37	2890
	Venus E.	102 58 16	3082	101 29 44	3073	100 1 2	3064	98 32 9	3056
5	α Pegasi W.	67 24 0	3020	68 53 48	3003	70 23 57	2986	71 54 27	2971
	Jupiter W.	46 48 0	2606	48 26 47	2597	50 5 46	2588	51 44 57	2580
	Pollux E.	57 1 11	2733	55 25 15	2728	53 49 12	2723	52 13 2	2718
	Mars E.	66 36 2	2845	65 2 32	2835	63 28 50	2827	61 54 57	2817
	Venus E.	91 4 56	3010	89 34 55	3001	88 4 43	2991	86 34 19	2982
	SUN E.	136 45 36	3006	135 15 31	2996	133 45 13	2985	132 14 41	2975
6	Jupiter W.	60 3 57	2535	61 44 22	2525	63 25 1	2516	65 5 52	2507
	α Arietis W.	35 59 45	3012	37 29 43	2971	39 0 32	2934	40 32 7	2900
	Pollux E.	44 10 53	2703	42 34 17	2702	40 57 40	2702	39 21 3	2704
	Mars E.	54 2 29	2771	52 27 23	2762	50 52 5	2753	49 16 35	2743
	Venus E.	78 59 23	2934	77 27 47	2924	75 55 59	2915	74 23 59	2905
	SUN E.	124 38 53	2924	123 7 4	2914	121 35 3	2903	120 2 48	2893
7	Jupiter W.	73 33 24	2460	75 15 34	2450	76 57 58	2440	78 40 36	2431
	α Arietis W.	48 20 0	2763	49 55 17	2741	51 31 3	2719	53 7 17	2699
	Mars E.	41 15 57	2696	39 39 12	2687	38 2 14	2678	36 25 5	2669
	Regulus E.	66 0 30	2500	64 19 16	2490	62 37 48	2480	60 56 7	2470
	Venus E.	66 40 48	2854	65 7 30	2845	63 34 0	2834	62 0 16	2824
	SUN E.	112 18 16	2841	110 44 41	2831	109 10 53	2820	107 36 51	2809
8	Jupiter W.	87 17 10	2382	89 1 10	2372	90 45 25	2362	92 29 54	2353
	α Arietis W.	61 14 48	2611	62 53 28	2595	64 32 30	2580	66 11 52	2566
	Regulus E.	52 24 14	2421	50 41 9	2411	48 57 50	2401	47 14 17	2391
	Venus E.	54 8 17	2772	52 33 12	2761	50 57 53	2751	49 22 21	2740
	SUN E.	99 43 13	2756	98 7 47	2746	96 32 8	2735	94 56 14	2724
9	α Arietis W.	74 33 32	2499	76 14 47	2487	77 56 18	2475	79 38 6	2464
	Aldebaran W.	41 35 5	2342	43 20 3	2333	45 5 15	2322	46 50 42	2313

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1	α Aquilæ W.	75 27 30	3413	76 49 32	3399	78 11 50	3385	79 34 24	3371
	Fomalhaut W.	41 40 1	3556	42 59 23	3510	44 19 36	3468	45 40 36	3429
	Aldebaran E.	56 48 29	2877	55 15 41	2870	53 42 43	2862	52 9 35	2853
	Mars E.	108 58 6	3090	107 29 44	3082	106 1 12	3073	104 32 29	3064
2	Fomalhaut W.	52 35 46	3269	54 0 33	3243	55 25 51	3219	56 51 38	3196
	α Pegasi W.	39 16 39	3684	40 33 43	3621	41 51 55	3565	43 11 8	3513
	Aldebaran E.	44 21 20	2814	42 47 10	2806	41 12 50	2797	39 38 18	2790
	Pollux E.	88 29 20	2874	86 56 28	2866	85 23 25	2858	83 50 12	2850
	Mars E.	97 6 18	3022	95 36 32	3013	94 6 35	3004	92 36 27	2996
3	Fomalhaut W.	64 6 59	3096	65 35 13	3080	67 3 47	3063	68 32 42	3048
	α Pegasi W.	50 0 17	3308	51 24 19	3275	52 49 0	3244	54 14 17	3216
	Jupiter W.	27 18 19	2714	28 54 41	2705	30 31 15	2696	32 8 1	2686
	Pollux E.	76 1 37	2812	74 27 25	2805	72 53 3	2798	71 18 32	2791
	Mars E.	85 3 6	2951	83 31 52	2943	82 0 28	2934	80 28 52	2925
	Venus E.	108 50 33	3118	107 22 45	3109	105 54 46	3100	104 26 36	3091
4	Fomalhaut W.	76 1 49	2978	77 32 29	2966	79 3 24	2954	80 34 35	2942
	α Pegasi W.	61 28 34	3096	62 56 49	3075	64 25 29	3056	65 54 33	3037
	Jupiter W.	40 14 54	2641	41 52 53	2633	43 31 3	2624	45 9 26	2615
	Pollux E.	63 23 39	2756	61 48 14	2750	60 12 41	2744	58 37 0	2738
	Mars E.	72 48 5	2881	71 15 22	2872	69 42 27	2863	68 9 20	2854
	Venus E.	97 3 5	3047	95 33 50	3037	94 4 23	3028	92 34 45	3019
5	α Pegasi W.	73 25 16	2957	74 56 23	2942	76 27 49	2928	77 59 32	2915
	Jupiter W.	53 24 20	2570	55 3 56	2562	56 43 43	2552	58 23 44	2543
	Pollux E.	50 36 46	2714	49 0 24	2710	47 23 58	2707	45 47 27	2705
	Mars E.	60 20 51	2808	58 46 34	2798	57 12 4	2790	55 37 23	2780
	Venus E.	85 3 44	2972	83 32 56	2963	82 1 57	2954	80 30 46	2944
	SUN E.	130 43 57	2965	129 13 0	2955	127 41 51	2944	126 10 28	2935
6	Jupiter W.	66 46 56	2497	68 28 13	2487	70 9 44	2479	71 51 27	2469
	α Arietis W.	42 4 26	2868	43 37 26	2839	45 11 3	2812	46 45 15	2787
	Pollux E.	37 44 28	2707	36 7 57	2711	34 31 32	2718	32 55 16	2727
	Mars E.	47 40 52	2733	46 4 56	2725	44 28 49	2715	42 52 29	2706
	Venus E.	72 51 46	2895	71 19 21	2885	69 46 43	2875	68 13 52	2865
	SUN E.	118 30 20	2883	116 57 39	2873	115 24 45	2862	113 51 37	2852
7	Jupiter W.	80 23 27	2421	82 6 32	2411	83 49 51	2402	85 33 23	2391
	α Arietis W.	54 43 58	2680	56 21 4	2662	57 58 35	2644	59 36 30	2627
	Mars E.	34 47 43	2660	33 10 10	2652	31 32 25	2643	29 54 28	2635
	Regulus E.	59 14 12	2460	57 32 3	2451	55 49 41	2441	54 7 4	2431
	Venus E.	60 26 20	2813	58 52 9	2803	57 17 45	2793	55 43 8	2782
	SUN E.	106 2 35	2798	104 28 5	2788	102 53 22	2777	101 18 24	2767
8	Jupiter W.	94 14 37	2342	95 59 35	2333	97 44 46	2323	99 30 12	2313
	α Arietis W.	67 51 34	2551	69 31 36	2538	71 11 56	2525	72 52 35	2512
	Regulus E.	45 30 30	2381	43 46 28	2372	42 2 13	2362	40 17 43	2352
	Venus E.	47 46 34	2730	46 10 34	2720	44 34 20	2709	42 57 52	2699
	SUN E.	93 20 6	2714	91 43 44	2704	90 7 9	2693	88 30 19	2682
9	α Arietis W.	81 20 10	2453	83 2 29	2443	84 45 3	2432	86 27 52	2423
	Aldebaran W.	48 36 22	2304	50 22 16	2294	52 8 24	2285	53 54 46	2276

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9	Regulus E.	38 32 59	2342	36 48 0	2333	35 2 48	2322	33 17 21	2313
	Venus E.	41 21 10	2689	39 44 15	2678	38 7 5	2668	36 29 42	2658
	SUN E.	86 53 15	2672	85 15 57	2661	83 38 25	2651	82 0 39	2641
10	α Arietis W.	88 10 54	2413	89 54 10	2405	91 37 38	2396	93 21 19	2388
	Aldebaran W.	55 41 21	2267	57 28 9	2258	59 15 11	2249	61 2 26	2241
	SUN E.	73 48 27	2592	72 9 21	2583	70 30 3	2574	68 50 33	2565
11	α Arietis W.	102 2 18	2356	103 46 56	2351	105 31 41	2348	107 16 31	2345
	Aldebaran W.	70 1 41	2201	71 50 7	2195	73 38 42	2188	75 27 28	2182
	Pollux W.	27 28 16	2479	29 9 58	2443	30 52 32	2411	32 35 51	2384
	SUN E.	60 30 7	2526	58 49 30	2519	57 8 43	2513	55 27 48	2507
12	Aldebaran W.	84 33 31	2155	86 23 6	2151	88 12 48	2147	90 2 35	2144
	Pollux W.	41 20 51	2289	43 7 7	2276	44 53 42	2264	46 40 34	2255
	Mars W.	26 38 36	2346	28 23 28	2339	30 8 30	2333	31 53 42	2328
	SUN E.	47 1 17	2484	45 19 41	2481	43 38 1	2479	41 56 18	2477
13	Pollux W.	55 38 2	2221	57 25 59	2217	59 14 1	2214	61 2 7	2212
	Mars W.	40 41 16	2311	42 27 0	2310	44 12 45	2310	45 58 30	2309
	Regulus W.	19 4 38	2135	20 54 44	2135	22 44 50	2135	24 34 55	2135
	SUN E.	33 27 33	2482	31 45 55	2487	30 4 23	2492	28 22 58	2499
17	SUN W.	20 54 3	2806	22 28 23	2810	24 2 37	2817	25 36 43	2826
	α Aquilæ E.	74 39 19	2943	73 7 54	2968	71 37 1	2995	70 6 42	3023
	Fomalhaut E.	107 55 2	2696	106 18 17	2706	104 41 45	2717	103 5 27	2728
18	SUN W.	33 23 39	2890	34 56 11	2905	36 28 24	2920	38 0 17	2935
	α Aquilæ E.	62 44 29	3189	61 18 7	3228	59 52 31	3268	58 27 42	3312
	Fomalhaut E.	95 8 3	2796	93 33 30	2811	91 59 16	2827	90 25 23	2844
	α Pegasi E.	109 56 1	2877	108 23 12	2886	106 50 35	2896	105 18 11	2908
19	SUN W.	45 34 40	3018	47 4 30	3035	48 34 0	3052	50 3 9	3068
	α Aquilæ E.	51 37 3	3567	50 17 53	3629	48 59 50	3695	47 42 58	3765
	Fomalhaut E.	82 41 30	2932	81 9 52	2952	79 38 39	2970	78 7 49	2990
	α Pegasi E.	97 40 3	2973	96 9 16	2987	94 38 47	3002	93 8 36	3018
	Jupiter E.	115 13 35	2611	113 34 55	2628	111 56 38	2643	110 18 42	2660
20	SUN W.	57 23 50	3150	58 50 59	3166	60 17 49	3182	61 44 20	3197
	Saturn W.	21 13 8	2865	22 46 12	2873	24 19 5	2883	25 51 46	2893
	Fomalhaut E.	70 39 57	3094	69 11 39	3116	67 43 49	3138	66 16 25	3160
	α Pegasi E.	85 42 37	3098	84 14 25	3115	82 46 33	3132	81 19 2	3149
	Jupiter E.	102 14 24	2738	100 38 34	2753	99 3 4	2767	97 27 53	2782
21	SUN W.	68 52 29	3270	70 17 16	3283	71 41 47	3295	73 6 4	3308
	Saturn W.	33 31 47	2947	35 3 6	2959	36 34 10	2970	38 5 1	2980
	Antares W.	30 24 8	3119	31 51 54	3113	33 19 48	3109	34 47 47	3106
	Fomalhaut E.	59 6 21	3281	57 41 48	3307	56 17 44	3334	54 54 12	3362
	α Pegasi E.	74 6 44	3239	72 41 21	3257	71 16 19	3276	69 51 40	3294
	Jupiter E.	89 36 35	2849	88 3 11	2862	86 30 3	2874	84 57 11	2886
22	SUN W.	80 3 55	3365	81 26 51	3375	82 49 36	3385	84 12 9	3394
	Saturn W.	45 36 5	3029	47 5 42	3037	48 35 9	3045	50 4 26	3053
	Antares W.	42 8 5	3108	43 36 5	3110	45 4 3	3112	46 31 58	3115
	Fomalhaut E.	48 4 56	3521	46 44 55	3558	45 25 35	3597	44 6 57	3639

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9	Regulus E.	31 31 41 2303		29 45 46 2294		27 59 38 2285		26 13 16 2276	
	Venus E.	34 52 5 2648		33 14 15 2638		31 36 12 2628		29 57 55 2619	
	SUN E.	80 22 39 2631		78 44 26 2621		77 6 0 2611		75 27 20 2601	
10	α Arietis W.	95 5 11 2381		96 49 13 2373		98 33 26 2367		100 17 48 2362	
	Aldebaran W.	62 49 53 2233		64 37 32 2224		66 25 24 2216		68 13 27 2209	
	SUN E.	67 10 50 2557		65 30 56 2548		63 50 50 2541		62 10 34 2533	
11	α Arietis W.	109 1 25 2342		110 46 24 2340		112 31 25 2339		114 16 27 2339	
	Aldebaran W.	77 16 23 2175		79 5 28 2170		80 54 41 2164		82 44 2 2159	
	Pollux W.	34 19 49 2360		36 4 22 2339		37 49 25 2320		39 34 56 2303	
12	SUN E.	53 46 44 2501		52 5 32 2496		50 24 13 2492		48 42 48 2487	
	Aldebaran W.	91 52 27 2141		93 42 23 2139		95 32 23 2137		97 22 25 2136	
	Pollux W.	48 27 40 2245		50 15 0 2237		52 2 32 2231		53 50 13 2226	
13	Mars W.	33 39 1 2323		35 24 27 2319		37 9 59 2315		38 55 36 2313	
	SUN E.	40 14 33 2477		38 32 47 2476		36 51 0 2477		35 9 15 2479	
	Pollux W.	62 50 17 2212		64 38 27 2211		66 26 39 2212		68 14 49 2213	
14	Mars W.	47 44 16 2310		49 30 1 2312		51 15 43 2313		53 1 23 2316	
	Regulus W.	26 25 0 2137		28 15 2 2140		30 5 1 2141		31 54 57 2143	
	SUN E.	26 41 43 2508		25 0 41 2519		23 19 54 2533		21 39 27 2550	
17	SUN W.	27 10 37 2837		28 44 16 2849		30 17 41 2862		31 50 49 2876	
	α Aquilæ E.	68 36 58 3053		67 7 51 3085		65 39 23 3118		64 11 35 3153	
	Fomalhaut E.	101 29 24 2741		99 53 38 2753		98 18 8 2766		96 42 56 2781	
18	SUN W.	39 31 51 2952		41 3 4 2969		42 33 56 2985		44 4 28 3001	
	α Aquilæ E.	57 3 45 3357		55 40 39 3405		54 18 28 3456		52 57 15 3511	
	Fomalhaut E.	88 51 52 2861		87 18 43 2878		85 45 56 2895		84 13 31 2914	
19	α Pegasi E.	103 46 2 2920		102 14 8 2932		100 42 29 2946		99 11 8 2959	
	SUN W.	51 31 58 3085		53 0 26 3102		54 28 33 3118		55 56 21 3134	
	α Aquilæ E.	46 27 19 3841		45 12 59 3922		44 0 1 4010		42 48 31 4105	
20	Fomalhaut E.	76 37 24 3010		75 7 24 3031		73 37 50 3051		72 8 40 3072	
	α Pegasi E.	91 38 45 3034		90 9 14 3049		88 40 1 3065		87 11 9 3082	
	Jupiter E.	108 41 8 2676		107 3 56 2691		105 27 4 2707		103 50 34 2722	
21	SUN W.	63 10 33 3212		64 36 28 3227		66 2 5 3241		67 27 25 3255	
	Saturn W.	27 24 14 2903		28 56 29 2915		30 28 29 2926		32 0 15 2937	
	Fomalhaut E.	64 49 28 3183		63 22 58 3207		61 56 57 3231		60 31 25 3255	
22	α Pegasi E.	79 51 52 3167		78 25 3 3185		76 58 36 3202		75 32 29 3220	
	Jupiter E.	95 53 1 2796		94 18 28 2810		92 44 13 2823		91 10 15 2837	
	SUN W.	74 30 6 3321		75 53 53 3332		77 17 27 3344		78 40 47 3355	
23	Saturn W.	39 35 39 2990		41 6 4 3001		42 36 16 3010		44 6 16 3019	
	Antares W.	36 15 49 3104		37 43 54 3105		39 11 58 3104		40 40 3 3106	
	Fomalhaut E.	53 31 12 3391		52 8 45 3422		50 46 53 3453		49 25 36 3486	
24	α Pegasi E.	68 27 22 3314		67 3 27 3334		65 39 55 3354		64 16 46 3374	
	Jupiter E.	83 24 34 2897		81 52 11 2908		80 20 2 2919		78 48 7 2928	
	SUN W.	85 34 32 3402		86 56 46 3411		88 18 50 3418		89 40 46 3425	
25	Saturn W.	51 33 33 3061		53 2 30 3068		54 31 19 3074		56 0 0 3080	
	Antares W.	47 59 49 3117		49 27 38 3120		50 55 23 3123		52 23 5 3125	
	Fomalhaut E.	42 49 5 3684		41 32 1 3732		40 15 48 3786		39 0 31 3847	

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22	α Pegasi E.	62 54 0	3395	61 31 37	3417	60 9 40	3439	58 48 7	3461
	Jupiter E.	77 16 24	2938	75 44 54	2948	74 13 36	2956	72 42 28	2965
23	SUN W.	91 2 34	3432	92 24 14	3438	93 45 47	3444	95 7 14	3448
	Saturn W.	57 28 34	3087	58 57 0	3092	60 25 20	3096	61 53 35	3101
	Antares W.	53 50 44	3128	55 18 19	3130	56 45 52	3132	58 13 23	3134
	α Pegasi E.	52 7 0	3389	50 48 14	3619	49 30 0	3650	48 12 19	3683
	Jupiter E.	65 9 17	3000	63 39 4	3005	62 8 58	3010	60 38 58	3015
24	SUN W.	101 53 16	3466	103 14 18	3469	104 35 17	3470	105 56 15	3471
	Saturn W.	69 13 39	3115	70 41 30	3116	72 9 20	3118	73 37 8	3118
	Antares W.	65 30 30	3139	66 57 52	3138	68 25 15	3138	69 52 38	3138
	Jupiter E.	53 10 13	3031	51 40 39	3033	50 11 7	3034	48 41 36	3035
	α Arietis E.	82 31 12	3216	81 5 22	3220	79 39 37	3222	78 13 54	3225
25	SUN W.	112 40 58	3468	114 1 58	3467	115 22 59	3464	116 44 3	3462
	Saturn W.	80 56 12	3114	82 24 5	3112	83 52 0	3109	85 19 58	3106
	Antares W.	77 9 53	3129	78 37 27	3127	80 5 4	3124	81 32 45	3120
	Jupiter E.	41 14 11	3034	39 44 40	3031	38 15 6	3030	36 45 30	3027
	α Arietis E.	71 5 56	3233	69 40 26	3234	68 14 57	3235	66 49 29	3236
26	SUN W.	123 30 16	3442	124 51 45	3438	126 13 19	3432	127 34 59	3426
	Saturn W.	92 40 55	3086	94 9 22	3080	95 37 56	3074	97 6 37	3068
	α Aquilæ W.	46 38 37	4102	47 48 37	4047	48 59 30	3996	50 11 13	3949
	α Arietis E.	59 42 25	3240	58 17 3	3241	56 51 43	3243	55 26 25	3245
	Aldebaran E.	90 57 18	3038	89 27 53	3033	87 58 21	3028	86 28 43	3022
27	Saturn W.	104 32 1	3033	106 1 33	3026	107 31 14	3018	109 1 5	3010
	α Aquilæ W.	56 20 50	3751	57 36 43	3718	58 53 11	3687	60 10 12	3658
	α Arietis E.	48 20 37	3262	46 55 41	3268	45 30 52	3275	44 6 11	3284
	Aldebaran E.	78 58 30	2987	77 28 1	2979	75 57 22	2970	74 26 32	2962
28	α Aquilæ W.	66 42 49	3527	68 2 43	3505	69 23 2	3483	70 43 45	3462
	Fomalhaut W.	33 26 9	3968	34 38 21	3879	35 52 2	3798	37 7 6	3726
	α Arietis E.	37 6 6	3359	35 43 3	3384	34 20 28	3413	32 58 26	3448
	Aldebaran E.	66 49 39	2916	65 17 41	2907	63 45 31	2898	62 13 9	2887
29	α Aquilæ W.	77 32 55	3370	78 55 46	3353	80 18 56	3338	81 42 23	3323
	Fomalhaut W.	43 39 35	3447	45 0 58	3404	46 23 10	3364	47 46 7	3326
	α Pegasi W.	31 32 59	4280	32 40 10	4150	33 49 24	4034	35 0 30	3930
	Aldebaran E.	54 28 1	2835	52 54 19	2825	51 20 24	2814	49 46 14	2804
	Pollux E.	98 28 4	2894	96 55 37	2883	95 22 56	2872	93 50 1	2861
30	Fomalhaut W.	54 51 0	3170	56 17 45	3143	57 45 2	3119	59 12 48	3095
	α Pegasi W.	41 19 10	3545	42 38 44	3488	43 59 21	3435	45 20 58	3386
	Aldebaran E.	41 51 56	2750	40 16 22	2739	38 40 34	2729	37 4 32	2718
	Pollux E.	86 1 55	2807	84 27 36	2796	82 53 3	2786	81 18 17	2775
	Mars E.	109 14 54	2923	107 43 5	2912	106 11 1	2901	104 38 43	2889
31	Fomalhaut W.	66 38 28	2993	68 8 50	2976	69 39 33	2958	71 10 38	2942
	α Pegasi W.	52 21 45	3191	53 48 5	3159	55 15 3	3129	56 42 37	3101
	Jupiter W.	33 15 28	2641	34 53 27	2630	36 31 41	2620	38 10 9	2610
	Pollux E.	73 21 9	2727	71 45 5	2719	70 8 50	2709	68 32 22	2701
	Mars E.	96 53 35	2834	95 19 51	2823	93 45 53	2812	92 11 41	2801

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22	α Pegasi E.	57 26 59 3485	56 6 18 3509	54 46 4 3534	53 26 17 3561				
	Jupiter E.	71 11 31 2973	69 40 44 2981	68 10 7 2987	66 39 38 2993				
23	SUN W.	96 28 36 3453	97 49 52 3457	99 11 4 3461	100 32 12 3464				
	Saturn W.	63 21 44 3105	64 49 48 3108	66 17 48 3110	67 45 45 3113				
	Antares W.	59 40 51 3135	61 8 18 3137	62 55 43 3138	64 3 7 3138				
	α Pegasi E.	46 55 14 3718	45 38 46 3756	44 22 58 3797	43 7 52 3842				
	Jupiter E.	59 9 4 3019	57 39 15 3022	56 9 30 3026	54 39 50 3029				
24	SUN W.	107 17 12 3471	108 38 8 3471	109 59 4 3471	111 20 1 3470				
	Saturn W.	75 4 56 3118	76 32 44 3118	78 0 32 3117	79 28 21 3115				
	Antares W.	71 20 2 3137	72 47 27 3136	74 14 53 3134	75 42 22 3132				
	Jupiter E.	47 12 7 3036	45 42 39 3035	44 13 10 3035	42 43 41 3035				
	α Arietis E.	76 48 15 3226	75 22 37 3229	73 57 2 3230	72 31 28 3231				
25	SUN W.	118 5 9 3458	119 26 20 3455	120 47 34 3451	122 8 53 3447				
	Saturn W.	86 48 0 3103	88 16 6 3099	89 44 17 3095	91 12 33 3090				
	Antares W.	83 0 30 3116	84 28 20 3112	85 56 15 3108	87 24 15 3104				
	Jupiter E.	35 15 51 3025	33 46 9 3022	32 16 23 3018	30 46 32 3014				
	α Arietis E.	65 24 2 3237	63 58 36 3238	62 33 12 3238	61 7 48 3239				
26	SUN W.	128 56 46 3421	130 18 39 3414	131 40 40 3408	133 2 47 3401				
	Saturn W.	98 35 26 3062	100 4 22 3056	101 33 26 3048	103 2 39 3041				
	α Aquilæ W.	51 23 43 3904	52 36 59 3863	53 50 56 3823	55 5 34 3787				
	α Arietis E.	54 1 9 3247	52 35 55 3250	51 10 45 3253	49 45 38 3258				
	Aldebaran E.	84 58 57 3015	83 29 3 3009	81 59 1 3002	80 28 50 2994				
27	Saturn W.	110 31 6 3001	112 1 18 2992	113 31 41 2982	115 2 16 2973				
	α Aquilæ W.	61 27 44 3628	62 45 48 3602	64 4 20 3576	65 23 21 3551				
	α Arietis E.	42 41 41 3294	41 17 23 3306	39 53 19 3321	38 29 32 3339				
	Aldebaran E.	72 55 32 2954	71 24 21 2945	69 52 59 2935	68 21 25 2926				
28	α Aquilæ W.	72 4 52 3442	73 26 21 3423	74 48 11 3404	76 10 23 3386				
	Fomalhaut W.	38 23 26 3660	39 40 56 3600	40 59 30 3545	42 19 5 3495				
	α Arietis E.	31 37 4 3490	30 16 28 3539	28 56 47 3597	27 38 9 3669				
	Aldebaran E.	60 40 34 2877	59 7 46 2866	57 34 44 2856	56 1 29 2846				
29	α Aquilæ W.	83 6 8 3309	84 30 9 3295	85 54 26 3283	87 18 57 3271				
	Fomalhaut W.	49 9 48 3291	50 34 10 3258	51 59 11 3227	53 24 48 3198				
	α Pegasi W.	36 13 19 3837	37 27 43 3753	38 43 34 3677	40 0 45 3608				
	Aldebaran E.	48 11 51 2792	46 37 13 2782	45 2 22 2771	43 27 16 2760				
	Pollux E.	92 16 52 2850	90 43 29 2838	89 9 51 2828	87 36 0 2818				
30	Fomalhaut W.	60 41 4 3073	62 9 47 3052	63 38 56 3031	65 8 30 3012				
	α Pegasi W.	46 43 30 3341	48 6 54 3299	49 31 7 3260	50 56 5 3224				
	Aldebaran E.	35 28 16 2707	33 51 45 2697	32 15 1 2686	30 38 2 2676				
	Pollux E.	79 43 17 2766	78 8 4 2756	76 32 39 2746	74 57 0 2737				
	Mars E.	103 6 10 2878	101 33 23 2866	100 0 21 2855	98 27 5 2845				
31	Fomalhaut W.	72 42 3 2927	74 13 48 2913	75 45 51 2898	77 18 12 2885				
	α Pegasi W.	58 10 45 3075	59 39 25 3051	61 8 34 3028	62 38 12 3006				
	Jupiter W.	39 48 51 2600	41 27 46 2590	43 6 55 2580	44 46 18 2570				
	Pollux E.	66 55 44 2692	65 18 54 2684	63 41 53 2677	62 4 43 2670				
	Mars E.	90 37 15 2791	89 2 36 2781	87 27 43 2771	85 52 37 2760				

Day of the Month.	AIRY's Day Numbers— For correcting the Places of the Fixed Stars.					Mean Time of Transit of the First Point of Aries.
	At Mean Midnight,					
	Logarithms of				Value of L	
	E	F	G	H		
1	1.63871	1.45062	0.23989	1.50406	42.168	^h ^m ^s 11 16 10.04
2	1.63817	1.45592	0.24031	1.50407	41.773	11 12 14.13
3	1.63757	1.46114	0.24073	1.50409	41.386	11 8 18.23
4	1.63693	1.46630	0.24115	1.50412	41.005	11 4 22.32
5	1.63623	1.47137	0.24157	1.50416	40.632	11 0 26.41
6	1.63546	1.47635	0.24199	1.50420	40.266	10 56 30.51
7	1.63465	1.48128	0.24242	1.50425	39.905	10 52 34.60
8	1.63378	1.48613	0.24285	1.50431	39.552	10 48 38.70
9	1.63285	1.49090	0.24329	1.50438	39.207	10 44 42.79
10	1.63187	1.49561	0.24373	1.50446	38.867	10 40 46.89
11	1.63083	1.50024	0.24417	1.50455	38.535	10 36 50.98
12	1.62973	1.50478	0.24462	1.50464	38.211	10 32 55.07
13	1.62858	1.50927	0.24507	1.50474	37.894	10 28 59.16
14	1.62736	1.51368	0.24553	1.50484	37.586	10 25 3.25
15	1.62608	1.51801	0.24599	1.50495	37.286	10 21 7.35
16	1.62475	1.52228	0.24645	1.50507	36.993	10 17 11.45
17	1.62336	1.52647	0.24692	1.50519	36.709	10 13 15.54
18	1.62191	1.53059	0.24739	1.50532	36.433	10 9 19.63
19	1.62042	1.53466	0.24787	1.50545	36.163	10 5 23.72
20	1.61886	1.53865	0.24836	1.50559	35.902	10 1 27.82
21	1.61723	1.54255	0.24885	1.50574	35.650	9 57 31.91
22	1.61555	1.54640	0.24935	1.50589	35.405	9 53 36.00
23	1.61381	1.55017	0.24985	1.50604	35.170	9 49 40.09
24	1.61200	1.55386	0.25036	1.50620	34.944	9 45 44.19
25	1.61015	1.55751	0.25087	1.50636	34.724	9 41 48.28
26	1.60823	1.56108	0.25139	1.50653	34.514	9 37 52.37
27	1.60625	1.56456	0.25192	1.50670	34.314	9 33 56.46
28	1.60421	1.56800	0.25246	1.50687	34.121	9 30 0.55
29	1.60210	1.57136	0.25300	1.50705	33.938	9 26 4.65
30	1.59993	1.57464	0.25354	1.50723	33.766	9 22 8.74
31	1.59771	1.57788	0.25409	1.50741	33.601	9 18 12.83
32	1.59542	1.58104	0.25465	1.50759	33.446	9 14 16.93

Day of the Month.	BESSEL'S Day Numbers— For correcting the Places of the Fixed Stars.				Days elapsed of the Julian Period at Mean Noon.	Mean Equinoctial Time, adding 0 ^d .269681. Days.	From Mean Noon of January 1.	
	At Mean Midnight,						Day of the Year.	Fraction of the Year.*
	Logarithms of							
	A	B	C	D				
1	+1.2677	+0.5083	+9.7303	+0.8401	2403607	193	274	.7502
2	1.2664	0.5527	9.7316	0.8401	2403608	194	275	.7529
3	1.2650	0.5928	9.7330	0.8402	2403609	195	276	.7557
4	+1.2635	+0.6295	+9.7343	+0.8404	2403610	196	277	.7584
5	1.2618	0.6632	9.7357	0.8405	2403611	197	278	.7611
6	1.2600	0.6943	9.7370	0.8407	2403612	198	279	.7639
7	+1.2581	+0.7233	+9.7384	+0.8410	2403613	199	280	.7667
8	1.2560	0.7504	9.7398	0.8413	2403614	200	281	.7694
9	1.2538	0.7757	9.7412	0.8416	2403615	201	282	.7721
10	+1.2514	+0.7996	+9.7426	+0.8419	2403616	202	283	.7748
11	1.2489	0.8221	9.7440	0.8423	2403617	203	284	.7776
12	1.2463	0.8434	9.7454	0.8427	2403618	204	285	.7803
13	+1.2435	+0.8636	+9.7468	+0.8432	2403619	205	286	.7830
14	1.2405	0.8828	9.7482	0.8437	2403620	206	287	.7858
15	1.2374	0.9010	9.7497	0.8442	2403621	207	288	.7885
16	+1.2342	+0.9184	+9.7511	+0.8447	2403622	208	289	.7913
17	1.2307	0.9350	9.7526	0.8453	2403623	209	290	.7940
18	1.2272	0.9509	9.7541	0.8459	2403624	210	291	.7967
19	+1.2234	+0.9661	+9.7556	+0.8465	2403625	211	292	.7995
20	1.2195	0.9807	9.7571	0.8471	2403626	212	293	.8022
21	1.2154	0.9946	9.7587	0.8478	2403627	213	294	.8049
22	+1.2112	+1.0081	+9.7601	+0.8485	2403628	214	295	.8077
23	1.2067	1.0210	9.7617	0.8492	2403629	215	296	.8104
24	1.2021	1.0334	9.7632	0.8499	2403630	216	297	.8132
25	+1.1973	+1.0453	+9.7648	+0.8506	2403631	217	298	.8159
26	1.1923	1.0568	9.7664	0.8513	2403632	218	299	.8186
27	1.1872	1.0678	9.7680	0.8521	2403633	219	300	.8214
28	+1.1818	+1.0785	+9.7696	+0.8529	2403634	220	301	.8241
29	1.1762	1.0888	9.7713	0.8537	2403635	221	302	.8268
30	1.1704	1.0987	9.7729	0.8545	2403636	222	303	.8296
31	1.1644	1.1083	9.7746	0.8553	2403637	223	304	.8323
32	+1.1582	+1.1176	+9.7763	+0.8561	2403638	224	305	.8351

* Add .0012 if Fraction be required for the time *t*, see page 329.

* Add .0012 if Fraction be required for the time t , see page 329.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be subtracted from Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
		h m s	s	° ' "	"	m s	m s	s
Sun.	1	14 27 50.93	9.814	S. 14 37 17.1	47.78	1 7.00	16 18.41	0.042
Mon.	2	14 31 46.87	9.848	14 56 16.7	47.18	1 7.12	16 19.02	0.009
Tues.	3	14 35 43.64	9.883	15 15 1.8	46.56	1 7.24	16 18.81	0.026
Wed.	4	14 39 41.24	9.918	15 33 31.8	45.93	1 7.35	16 17.76	0.061
Thur.	5	14 43 39.69	9.953	15 51 46.5	45.28	1 7.47	16 15.87	0.096
Frid.	6	14 47 39.00	9.989	16 9 45.4	44.62	1 7.59	16 13.13	0.132
Sat.	7	14 51 39.16	10.025	16 27 28.2	43.94	1 7.71	16 9.54	0.168
Sun.	8	14 55 40.18	10.061	16 44 54.4	43.24	1 7.83	16 5.08	0.204
Mon.	9	14 59 42.07	10.097	17 2 3.7	42.52	1 7.95	15 59.75	0.240
Tues.	10	15 3 44.83	10.133	17 18 55.6	41.79	1 8.06	15 53.57	0.276
Wed.	11	15 7 48.45	10.169	17 35 29.6	41.04	1 8.18	15 46.52	0.312
Thur.	12	15 11 52.94	10.205	17 51 45.5	40.27	1 8.30	15 38.61	0.347
Frid.	13	15 15 58.29	10.241	18 7 42.8	39.49	1 8.42	15 29.85	0.383
Sat.	14	15 20 4.49	10.276	18 23 21.1	38.69	1 8.54	15 20.22	0.419
Sun.	15	15 24 11.55	10.312	18 38 40.1	37.88	1 8.66	15 9.74	0.454
Mon.	16	15 28 19.45	10.347	18 53 39.2	37.04	1 8.78	14 58.43	0.489
Tues.	17	15 32 28.19	10.381	19 8 18.0	36.19	1 8.89	14 46.28	0.523
Wed.	18	15 36 37.75	10.415	19 22 36.3	35.32	1 9.00	14 33.31	0.557
Thur.	19	15 40 48.12	10.449	19 36 33.5	34.44	1 9.12	14 19.54	0.590
Frid.	20	15 44 59.29	10.482	19 50 9.3	33.54	1 9.23	14 4.97	0.624
Sat.	21	15 49 11.24	10.514	20 3 23.4	32.63	1 9.34	13 49.61	0.656
Sun.	22	15 53 23.96	10.546	20 16 15.4	31.70	1 9.45	13 33.48	0.688
Mon.	23	15 57 37.45	10.578	20 28 44.8	30.75	1 9.56	13 16.59	0.720
Tues.	24	16 1 51.71	10.610	20 40 51.4	29.79	1 9.67	12 58.94	0.751
Wed.	25	16 6 6.71	10.640	20 52 34.9	28.82	1 9.77	12 40.55	0.781
Thur.	26	16 10 22.44	10.670	21 3 54.8	27.83	1 9.87	12 21.43	0.811
Frid.	27	16 14 38.89	10.700	21 14 50.9	26.83	1 9.97	12 1.60	0.841
Sat.	28	16 18 56.04	10.729	21 25 22.8	25.82	1 10.07	11 41.06	0.870
Sun.	29	16 23 13.87	10.757	21 35 30.4	24.80	1 10.16	11 19.84	0.898
Mon.	30	16 27 32.38	10.785	21 45 13.3	23.76	1 10.25	10 57.94	0.926
Tues.	31	16 31 51.55	10.812	S. 21 54 31.1	22.72	1 10.34	10 35.39	0.953

*Mean Time of the Semidiameter passing may be found by subtracting 0.19 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be added to Mean Time.	Sidereal Time.
		Apparent Right Ascension.	Apparent Declination.	Semidiam.*		
		h m s	° ' "	' "	m s	h m s
Sun.	1	14 27 53.60	S. 14 37 30.1	16 9.9	16 18.42	14 44 12.02
Mon.	2	14 31 49.55	14 56 29.5	16 10.1	16 19.02	14 48 8.57
Tues.	3	14 35 46.33	15 15 14.4	16 10.4	16 18.80	14 52 5.13
Wed.	4	14 39 43.94	15 33 44.3	16 10.6	16 17.74	14 56 1.68
Thur.	5	14 43 42.39	15 51 58.8	16 10.8	16 15.84	14 59 58.23
Frid.	6	14 47 41.70	16 9 57.5	16 11.0	16 13.09	15 3 54.79
Sat.	7	14 51 41.86	16 27 40.0	16 11.3	16 9.49	15 7 51.35
Sun.	8	14 55 42.88	16 45 6.0	16 11.6	16 5.02	15 11 47.90
Mon.	9	14 59 44.76	17 2 15.0	16 11.8	15 59.69	15 15 44.45
Tues.	10	15 3 47.51	17 19 6.6	16 12.0	15 53.50	15 19 41.01
Wed.	11	15 7 51.12	17 35 40.4	16 12.2	15 46.44	15 23 37.56
Thur.	12	15 11 55.60	17 51 56.0	16 12.4	15 38.52	15 27 34.12
Frid.	13	15 16 0.93	18 7 53.0	16 12.6	15 29.75	15 31 30.68
Sat.	14	15 20 7.12	18 23 31.0	16 12.8	15 20.11	15 35 27.23
Sun.	15	15 24 14.16	18 38 49.6	16 13.0	15 9.62	15 39 23.78
Mon.	16	15 28 22.04	18 53 48.4	16 13.2	14 58.30	15 43 20.34
Tues.	17	15 32 30.75	19 8 26.9	16 13.4	14 46.15	15 47 16.90
Wed.	18	15 36 40.28	19 22 44.8	16 13.6	14 33.18	15 51 13.46
Thur.	19	15 40 50.61	19 36 41.7	16 13.8	14 19.40	15 55 10.01
Frid.	20	15 45 1.74	19 50 17.2	16 14.0	14 4.82	15 59 6.56
Sat.	21	15 49 13.66	20 3 30.9	16 14.2	13 49.46	16 3 3.12
Sun.	22	15 53 26.35	20 16 22.5	16 14.4	13 33.33	16 6 59.68
Mon.	23	15 57 39.80	20 28 51.6	16 14.6	13 16.43	16 10 56.23
Tues.	24	16 1 54.01	20 40 57.9	16 14.8	12 58.77	16 14 52.78
Wed.	25	16 6 8.96	20 52 41.0	16 15.0	12 40.38	16 18 49.34
Thur.	26	16 10 24.64	21 4 0.5	16 15.1	12 21.26	16 22 45.90
Frid.	27	16 14 41.03	21 14 56.2	16 15.3	12 1.43	16 26 42.46
Sat.	28	16 18 58.12	21 25 27.8	16 15.5	11 40.89	16 30 39.01
Sun.	29	16 23 15.90	21 35 35.1	16 15.6	11 19.67	16 34 35.57
Mon.	30	16 27 34.35	21 45 17.6	16 15.8	10 57.77	16 38 32.12
Tues.	31	16 31 53.46	S. 21 54 35.1	16 15.9	10 35.22	16 42 28.68

* The Semidiameter for Apparent Noon may be assumed the same as that for Mean Noon.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semidiameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	219 22 23 ⁶	S. 0 ³³	9 ⁹⁹⁶³⁸²⁵	15 33 ⁹	15 38 ⁰	57 1 ⁵	57 16 ⁶
2	220 22 30 ⁵	0 ³²	9 ⁹⁹⁶²⁷³⁴	15 42 ⁰	15 45 ⁷	57 31 ¹	57 44 ⁸
3	221 22 39 ⁴	0 ²⁸	9 ⁹⁹⁶¹⁶⁵⁹	15 49 ²	15 52 ⁵	57 57 ⁷	58 9 ⁸
4	222 22 50 ²	0 ²¹	9 ⁹⁹⁶⁰⁶⁰⁰	15 55 ⁶	15 58 ⁴	58 21 ⁰	58 31 ³
5	223 23 3 ¹	S. 0 ¹⁰	9 ⁹⁹⁵⁹⁵⁵⁶	16 1 ⁰	16 3 ³	58 40 ⁷	58 49 ³
6	224 23 18 ⁰	N. 0 ⁰³	9 ⁹⁹⁵⁸⁵²⁷	16 5 ⁴	16 7 ²	58 57 ⁰	59 3 ⁷
7	225 23 34 ⁹	0 ¹⁶	9 ⁹⁹⁵⁷⁵¹²	16 8 ⁸	16 10 ¹	59 9 ⁶	59 14 ³
8	226 23 53 ⁹	0 ²⁸	9 ⁹⁹⁵⁶⁵¹⁰	16 11 ¹	16 11 ⁸	59 18 ⁰	59 20 ⁴
9	227 24 14 ⁸	0 ⁴⁰	9 ⁹⁹⁵⁵⁵¹⁹	16 12 ⁰	16 11 ⁹	59 21 ⁴	59 20 ⁹
10	228 24 37 ⁷	0 ⁵¹	9 ⁹⁹⁵⁴⁵³⁹	16 11 ³	16 10 ²	59 18 ⁷	59 14 ⁶
11	229 25 2 ⁵	0 ⁶¹	9 ⁹⁹⁵³⁵⁶⁷	16 8 ⁶	16 6 ⁴	59 8 ⁶	59 0 ⁶
12	230 25 29 ²	0 ⁶⁸	9 ⁹⁹⁵²⁶⁰³	16 3 ⁶	16 0 ⁴	58 50 ⁵	58 38 ⁵
13	231 25 57 ⁶	0 ⁷¹	9 ⁹⁹⁵¹⁶⁴⁸	15 56 ⁵	15 52 ²	58 24 ⁵	58 8 ⁷
14	232 26 27 ⁷	0 ⁷¹	9 ⁹⁹⁵⁰⁷⁰²	15 47 ⁵	15 42 ⁵	57 51 ⁵	57 33 ⁰
15	233 26 59 ⁵	0 ⁶⁸	9 ⁹⁹⁴⁹⁷⁶⁵	15 37 ²	15 31 ⁸	57 13 ⁶	56 53 ⁷
16	234 27 32 ⁸	0 ⁶³	9 ⁹⁹⁴⁸⁸³⁵	15 26 ²	15 20 ⁸	56 33 ⁵	56 13 ⁶
17	235 28 7 ⁵	0 ⁵⁶	9 ⁹⁹⁴⁷⁹¹⁴	15 15 ⁵	15 10 ⁵	55 54 ²	55 35 ⁷
18	236 28 43 ⁵	0 ⁴⁶	9 ⁹⁹⁴⁷⁰⁰⁴	15 5 ⁸	15 1 ⁵	55 18 ⁵	55 2 ⁹
19	237 29 20 ⁸	0 ³⁵	9 ⁹⁹⁴⁶¹⁰⁶	14 57 ⁷	14 54 ⁶	54 49 ¹	54 37 ⁴
20	238 29 59 ³	0 ²³	9 ⁹⁹⁴⁵²²¹	14 52 ⁰	14 50 ⁰	54 27 ⁹	54 20 ⁹
21	239 30 39 ⁰	N. 0 ¹¹	9 ⁹⁹⁴⁴³⁵²	14 48 ⁸	14 48 ³	54 16 ³	54 14 ⁴
22	240 31 19 ⁷	S. 0 ⁰¹	9 ⁹⁹⁴³⁵⁰⁰	14 48 ⁵	14 49 ⁴	54 15 ²	54 18 ⁶
23	241 32 1 ⁵	0 ¹²	9 ⁹⁹⁴²⁶⁶⁴	14 51 ¹	14 53 ⁴	54 24 ⁶	54 33 ¹
24	242 32 44 ⁴	0 ²³	9 ⁹⁹⁴¹⁸⁴⁵	14 56 ⁴	15 0 ⁰	54 44 ⁰	54 57 ²
25	243 33 28 ³	0 ³²	9 ⁹⁹⁴¹⁰⁴⁶	15 4 ¹	15 8 ⁸	55 12 ⁴	55 29 ⁴
26	244 34 13 ³	0 ³⁹	9 ⁹⁹⁴⁰²⁷⁰	15 13 ⁸	15 19 ¹	55 47 ⁹	56 7 ⁵
27	245 34 59 ⁴	0 ⁴⁴	9 ⁹⁹³⁹⁵¹⁵	15 24 ⁷	15 30 ⁴	56 28 ⁰	56 48 ⁹
28	246 35 46 ⁵	0 ⁴⁷	9 ⁹⁹³⁸⁷⁸³	15 36 ¹	15 41 ⁸	57 9 ⁸	57 30 ⁴
29	247 36 34 ⁸	0 ⁴⁷	9 ⁹⁹³⁸⁰⁷⁶	15 47 ²	15 52 ³	57 50 ²	58 8 ⁸
30	248 37 24 ²	0 ⁴⁴	9 ⁹⁹³⁷³⁹⁵	15 56 ⁹	16 1 ¹	58 26 ⁰	58 41 ³
31	249 38 14 ⁹	S. 0 ³⁸	9 ⁹⁹³⁶⁷³⁸	16 4 ⁸	16 7 ⁸	58 54 ⁷	59 5 ⁸

MEAN TIME.

THE MOON'S

Day of the Week.	Day of the Month.	Longitude.		Latitude.		Age.	Meridian
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.
Sun.	1	51° 58' 36".3	58° 38' 19".2	S. 5° 0' 57".1	S. 4° 59' 18".3	16.5	13 6.3
Mon.	2	65 21 11.0	72 6 54.0	4 53 30.7	4 43 34.0	17.5	13 59.3
Tues.	3	78 55 10.2	85 45 42.4	4 29 31.7	4 11 32.2	18.5	14 54.6
Wed.	4	92 38 14.9	99 32 34.1	3 49 47.8	3 24 35.0	19.5	15 51.3
Thur.	5	106 28 28.7	113 25 49.9	2 56 14.0	2 25 8.5	20.5	16 48.5
Frid.	6	120 24 31.4	127 24 28.6	1 51 45.5	1 16 34.5	21.5	17 44.9
Sat.	7	134 25 37.5	141 27 55.1	S. 0 40 7.3	S. 0 2 57.2	22.5	18 40.1
Sun.	8	148 31 16.8	155 35 37.2	N. 0 34 20.8	N. 1 11 11.2	23.5	19 33.7
Mon.	9	162 40 47.9	169 46 36.4	1 46 58.6	2 21 7.7	24.5	20 26.0
Tues.	10	176 52 46.5	183 58 57.3	2 53 5.2	3 22 19.3	25.5	21 17.5
Wed.	11	191 4 43.6	198 9 35.7	3 48 21.6	4 10 47.3	26.5	22 8.7
Thur.	12	205 13 1.1	212 14 24.3	4 29 16.3	4 43 33.5	27.5	23 0.0
Frid.	13	219 13 9.8	226 8 42.1	4 53 29.4	4 58 59.7	28.5	23 51.9
Sat.	14	233 0 28.3	239 47 59.9	5 0 5.9	4 56 54.6	0.0	6
Sun.	15	246 30 52.5	253 8 47.7	4 49 36.7	4 38 26.9	1.0	0 44.2
Mon.	16	259 41 34.7	266 9 9.4	4 23 43.0	4 5 44.9	2.0	1 36.6
Tues.	17	272 31 34.9	278 49 0.7	3 44 53.8	3 21 31.3	3.0	2 28.6
Wed.	18	285 1 43.3	291 10 4.8	2 55 59.5	2 28 40.0	4.0	3 19.3
Thur.	19	297 14 32.0	303 15 36.5	1 59 53.5	1 30 0.2	5.0	4 8.5
Frid.	20	309 13 53.4	315 10 0.4	N. 0 59 19.5	N. 0 28 9.5	6.0	4 55.7
Sat.	21	321 4 37.6	326 58 26.4	S. 0 3 11.9	S. 0 34 27.6	7.0	5 41.2
Sun.	22	332 52 9.2	338 46 28.2	1 5 20.8	1 35 34.8	8.0	6 25.2
Mon.	23	344 42 5.3	350 39 41.3	2 4 52.8	2 32 57.9	9.0	7 8.4
Tues.	24	356 39 55.0	2 43 22.8	2 59 32.7	3 24 19.3	10.0	7 51.3
Wed.	25	8 50 37.9	15 2 9.1	3 46 59.4	4 7 14.3	11.0	8 34.8
Thur.	26	21 18 20.9	27 39 31.8	4 24 45.1	4 39 13.1	12.0	9 19.7
Frid.	27	34 5 54.1	40 37 33.7	4 50 20.1	4 57 49.2	13.0	10 6.8
Sat.	28	47 14 29.1	53 56 31.6	5 1 25.4	5 0 56.5	14.0	10 56.6
Sun.	29	60 43 25.5	67 34 48.9	4 56 13.3	4 47 11.5	15.0	11 49.5
Mon.	30	74 30 13.8	81 29 8.3	4 33 51.1	4 16 17.8	16.0	12 45.3
Tues.	31	88 30 57.2	95 35 3.8	S. 3 54 42.8	S. 3 29 23.0	17.0	13 43.3

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SUNDAY 1.				TUESDAY 3.			
0	3 23 32.83	N.13 25 21.8	82.96	0	5 13 22.28	N.18 30 52.5	40.77
1	3 25 44.49	13 33 37.6	82.31	1	5 15 44.94	18 34 53.8	39.68
2	3 27 56.39	13 41 49.5	81.65	2	5 18 7.79	18 38 48.6	38.58
3	3 30 8.53	13 49 57.4	80.98	3	5 20 30.81	18 42 36.7	37.47
4	3 32 20.93	13 58 1.2	80.29	4	5 22 54.02	18 46 18.2	36.36
5	3 34 33.57	14 6 0.9	79.60	5	5 25 17.40	18 49 53.0	35.24
6	3 36 46.46	14 13 56.4	78.89	6	5 27 40.95	18 53 21.1	34.12
7	3 38 59.59	14 21 47.6	78.18	7	5 30 4.67	18 56 42.4	32.98
8	3 41 12.97	14 29 34.6	77.47	8	5 32 28.56	18 59 56.9	31.85
9	3 43 26.60	14 37 17.2	76.73	9	5 34 52.61	19 3 4.6	30.70
10	3 45 40.47	14 44 55.3	75.98	10	5 37 16.82	19 6 5.3	29.54
11	3 47 54.59	14 52 29.0	75.23	11	5 39 41.18	19 8 59.1	28.39
12	3 50 8.95	14 59 58.1	74.47	12	5 42 5.70	19 11 46.0	27.23
13	3 52 23.56	15 7 22.6	73.70	13	5 44 30.37	19 14 25.9	26.07
14	3 54 38.42	15 14 42.5	72.92	14	5 46 55.18	19 16 58.8	24.90
15	3 56 53.52	15 21 57.6	72.12	15	5 49 20.13	19 19 24.7	23.72
16	3 59 8.87	15 29 7.9	71.32	16	5 51 45.22	19 21 43.4	22.53
17	4 1 24.46	15 36 13.4	70.51	17	5 54 10.44	19 23 55.1	21.35
18	4 3 40.29	15 43 14.0	69.69	18	5 56 35.80	19 25 59.6	20.16
19	4 5 56.37	15 50 9.7	68.86	19	5 59 1.28	19 27 57.0	18.96
20	4 8 12.69	15 57 0.3	68.01	20	6 1 26.88	19 29 47.1	17.76
21	4 10 29.24	16 3 45.8	67.16	21	6 3 52.61	19 31 30.1	16.56
22	4 12 46.04	16 10 26.2	66.30	22	6 6 18.45	19 33 5.8	15.35
23	4 15 3.08	N.16 17 1.4	65.42	23	6 8 44.39	N.19 34 34.3	14.13
MONDAY 2.				WEDNESDAY 4.			
0	4 17 20.36	N.16 23 31.3	64.54	0	6 11 10.45	N.19 35 55.4	12.92
1	4 19 37.87	16 29 55.9	63.66	1	6 13 36.61	19 37 9.3	11.70
2	4 21 55.62	16 36 15.2	62.76	2	6 16 2.86	19 38 15.8	10.47
3	4 24 13.60	16 42 29.0	61.85	3	6 18 29.21	19 39 14.9	9.24
4	4 26 31.82	16 48 37.4	60.93	4	6 20 55.65	19 40 6.7	8.02
5	4 28 50.27	16 54 40.2	60.00	5	6 23 22.18	19 40 51.2	6.79
6	4 31 8.94	17 0 37.4	59.07	6	6 25 48.79	19 41 28.2	5.55
7	4 33 27.85	17 6 29.0	58.13	7	6 28 15.47	19 41 57.8	4.31
8	4 35 46.98	17 12 14.9	57.18	8	6 30 42.23	19 42 20.0	3.07
9	4 38 6.34	17 17 55.1	56.21	9	6 33 9.06	19 42 34.7	1.83
10	4 40 25.92	17 23 29.4	55.23	10	6 35 35.95	19 42 42.0	0.60
11	4 42 45.72	17 28 57.9	54.25	11	6 38 2.90	19 42 41.9	0.64
12	4 45 5.74	17 34 20.4	53.26	12	6 40 29.91	19 42 34.3	1.89
13	4 47 25.98	17 39 37.0	52.27	13	6 42 56.97	19 42 19.2	3.14
14	4 49 46.43	17 44 47.6	51.27	14	6 45 24.08	19 41 56.6	4.38
15	4 52 7.10	17 49 52.2	50.26	15	6 47 51.24	19 41 26.6	5.63
16	4 54 27.98	17 54 50.7	49.23	16	6 50 18.44	19 40 49.0	6.88
17	4 56 49.06	17 59 43.0	48.20	17	6 52 45.67	19 40 4.0	8.13
18	4 59 10.35	18 4 29.1	47.16	18	6 55 12.93	19 39 11.5	9.38
19	5 1 31.85	18 9 8.9	46.11	19	6 57 40.22	19 38 11.4	10.63
20	5 3 53.54	18 13 42.4	45.05	20	7 0 7.53	19 37 3.9	11.88
21	5 6 15.44	18 18 9.5	43.99	21	7 2 34.86	19 35 48.8	13.13
22	5 8 37.53	18 22 30.3	42.93	22	7 5 2.21	19 34 26.3	14.38
23	5 10 59.81	18 26 44.6	41.85	23	7 7 29.57	19 32 56.2	15.63
24	5 13 22.28	N.18 30 52.5	40.77	24	7 9 56.93	N.19 31 18.7	16.88

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 5.				SATURDAY 7.			
0	7 9 56 ^{h m s} .93	N.19 31 18 ^{o ' "} .7	16 ^{''} .88	0	9 6 46 ^{h m s} .59	N.15 52 24 ^{o ' "} .6	72 ^{''} .35
1	7 12 24 ^{h m s} .30	19 29 33 ^{o ' "} .7	18 ^{''} .13	1	9 9 10 ^{h m s} .10	15 45 7 ^{o ' "} .5	73 ^{''} .35
2	7 14 51 ^{h m s} .66	19 27 41 ^{o ' "} .2	19 ^{''} .38	2	9 11 33 ^{h m s} .48	15 37 44 ^{o ' "} .4	74 ^{''} .34
3	7 17 19 ^{h m s} .01	19 25 41 ^{o ' "} .2	20 ^{''} .62	3	9 13 56 ^{h m s} .71	15 30 15 ^{o ' "} .4	75 ^{''} .33
4	7 19 46 ^{h m s} .36	19 23 33 ^{o ' "} .8	21 ^{''} .85	4	9 16 19 ^{h m s} .81	15 22 40 ^{o ' "} .5	76 ^{''} .30
5	7 22 13 ^{h m s} .69	19 21 19 ^{o ' "} .0	23 ^{''} .09	5	9 18 42 ^{h m s} .76	15 14 59 ^{o ' "} .8	77 ^{''} .27
6	7 24 41 ^{h m s} .00	19 18 56 ^{o ' "} .7	24 ^{''} .34	6	9 21 5 ^{h m s} .57	15 7 13 ^{o ' "} .3	78 ^{''} .23
7	7 27 8 ^{h m s} .29	19 16 26 ^{o ' "} .9	25 ^{''} .58	7	9 23 28 ^{h m s} .24	14 59 21 ^{o ' "} .1	79 ^{''} .17
8	7 29 35 ^{h m s} .56	19 13 49 ^{o ' "} .8	26 ^{''} .81	8	9 25 50 ^{h m s} .77	14 51 23 ^{o ' "} .3	80 ^{''} .10
9	7 32 2 ^{h m s} .80	19 11 5 ^{o ' "} .2	28 ^{''} .04	9	9 28 13 ^{h m s} .16	14 43 19 ^{o ' "} .9	81 ^{''} .03
10	7 34 30 ^{h m s} .00	19 8 13 ^{o ' "} .3	29 ^{''} .27	10	9 30 35 ^{h m s} .39	14 35 10 ^{o ' "} .9	81 ^{''} .95
11	7 36 57 ^{h m s} .17	19 5 14 ^{o ' "} .0	30 ^{''} .50	11	9 32 57 ^{h m s} .48	14 26 56 ^{o ' "} .5	82 ^{''} .85
12	7 39 24 ^{h m s} .29	19 2 7 ^{o ' "} .3	31 ^{''} .72	12	9 35 19 ^{h m s} .43	14 18 36 ^{o ' "} .7	83 ^{''} .75
13	7 41 51 ^{h m s} .37	18 58 53 ^{o ' "} .3	32 ^{''} .94	13	9 37 41 ^{h m s} .23	14 10 11 ^{o ' "} .5	84 ^{''} .64
14	7 44 18 ^{h m s} .41	18 55 32 ^{o ' "} .0	34 ^{''} .16	14	9 40 2 ^{h m s} .88	14 1 41 ^{o ' "} .0	85 ^{''} .53
15	7 46 45 ^{h m s} .39	18 52 3 ^{o ' "} .4	35 ^{''} .37	15	9 42 24 ^{h m s} .39	13 53 5 ^{o ' "} .2	86 ^{''} .40
16	7 49 12 ^{h m s} .31	18 48 27 ^{o ' "} .6	36 ^{''} .58	16	9 44 45 ^{h m s} .75	13 44 24 ^{o ' "} .2	87 ^{''} .26
17	7 51 39 ^{h m s} .18	18 44 44 ^{o ' "} .5	37 ^{''} .79	17	9 47 6 ^{h m s} .96	13 35 38 ^{o ' "} .1	88 ^{''} .11
18	7 54 5 ^{h m s} .08	18 40 54 ^{o ' "} .1	38 ^{''} .99	18	9 49 28 ^{h m s} .03	13 26 46 ^{o ' "} .9	88 ^{''} .95
19	7 56 32 ^{h m s} .72	18 36 56 ^{o ' "} .6	40 ^{''} .18	19	9 51 48 ^{h m s} .95	13 17 50 ^{o ' "} .7	89 ^{''} .78
20	7 58 59 ^{h m s} .39	18 32 51 ^{o ' "} .9	41 ^{''} .37	20	9 54 9 ^{h m s} .72	13 8 49 ^{o ' "} .5	90 ^{''} .60
21	8 1 25 ^{h m s} .99	18 28 40 ^{o ' "} .1	42 ^{''} .56	21	9 56 30 ^{h m s} .34	12 59 43 ^{o ' "} .5	91 ^{''} .41
22	8 3 52 ^{h m s} .52	18 24 21 ^{o ' "} .1	43 ^{''} .75	22	9 58 50 ^{h m s} .82	12 50 32 ^{o ' "} .6	92 ^{''} .21
23	8 6 18 ^{h m s} .96	N.18 19 55 ^{o ' "} .1	44 ^{''} .93	23	10 1 11 ^{h m s} .15	N.12 41 17 ^{o ' "} .0	93 ^{''} .00
FRIDAY 6.				SUNDAY 8.			
0	8 8 45 ^{h m s} .32	N.18 15 22 ^{o ' "} .0	46 ^{''} .10	0	10 3 31 ^{h m s} .33	N.12 31 56 ^{o ' "} .6	93 ^{''} .78
1	8 11 11 ^{h m s} .60	18 10 41 ^{o ' "} .9	47 ^{''} .27	1	10 5 51 ^{h m s} .37	12 22 31 ^{o ' "} .6	94 ^{''} .54
2	8 13 37 ^{h m s} .79	18 5 54 ^{o ' "} .7	48 ^{''} .44	2	10 8 11 ^{h m s} .27	12 13 2 ^{o ' "} .1	95 ^{''} .30
3	8 16 3 ^{h m s} .89	18 1 0 ^{o ' "} .6	49 ^{''} .59	3	10 10 31 ^{h m s} .02	12 3 28 ^{o ' "} .0	96 ^{''} .05
4	8 18 29 ^{h m s} .89	17 55 59 ^{o ' "} .6	50 ^{''} .74	4	10 12 50 ^{h m s} .63	11 53 49 ^{o ' "} .5	96 ^{''} .78
5	8 20 55 ^{h m s} .80	17 50 51 ^{o ' "} .7	51 ^{''} .89	5	10 15 10 ^{h m s} .09	11 44 6 ^{o ' "} .6	97 ^{''} .51
6	8 23 21 ^{h m s} .61	17 45 36 ^{o ' "} .9	53 ^{''} .03	6	10 17 29 ^{h m s} .41	11 34 19 ^{o ' "} .4	98 ^{''} .23
7	8 25 47 ^{h m s} .32	17 40 15 ^{o ' "} .3	54 ^{''} .17	7	10 19 48 ^{h m s} .59	11 24 27 ^{o ' "} .9	98 ^{''} .93
8	8 28 12 ^{h m s} .92	17 34 46 ^{o ' "} .9	55 ^{''} .29	8	10 22 7 ^{h m s} .63	11 14 32 ^{o ' "} .2	99 ^{''} .62
9	8 30 38 ^{h m s} .42	17 29 11 ^{o ' "} .8	56 ^{''} .41	9	10 24 26 ^{h m s} .53	11 4 32 ^{o ' "} .4	100 ^{''} .30
10	8 33 3 ^{h m s} .81	17 23 30 ^{o ' "} .0	57 ^{''} .52	10	10 26 45 ^{h m s} .29	10 54 28 ^{o ' "} .6	100 ^{''} .97
11	8 35 29 ^{h m s} .08	17 17 41 ^{o ' "} .6	58 ^{''} .63	11	10 29 3 ^{h m s} .91	10 44 20 ^{o ' "} .8	101 ^{''} .63
12	8 37 54 ^{h m s} .24	17 11 46 ^{o ' "} .5	59 ^{''} .73	12	10 31 22 ^{h m s} .39	10 34 9 ^{o ' "} .0	102 ^{''} .28
13	8 40 19 ^{h m s} .29	17 5 44 ^{o ' "} .8	60 ^{''} .83	13	10 33 40 ^{h m s} .74	10 23 53 ^{o ' "} .4	102 ^{''} .92
14	8 42 44 ^{h m s} .21	16 59 36 ^{o ' "} .6	61 ^{''} .91	14	10 35 58 ^{h m s} .95	10 13 34 ^{o ' "} .0	103 ^{''} .54
15	8 45 9 ^{h m s} .02	16 53 21 ^{o ' "} .9	62 ^{''} .99	15	10 38 17 ^{h m s} .03	10 3 10 ^{o ' "} .9	104 ^{''} .16
16	8 47 33 ^{h m s} .71	16 47 0 ^{o ' "} .7	64 ^{''} .07	16	10 40 34 ^{h m s} .97	9 52 44 ^{o ' "} .1	104 ^{''} .77
17	8 49 58 ^{h m s} .27	16 40 33 ^{o ' "} .1	65 ^{''} .13	17	10 42 52 ^{h m s} .79	9 42 13 ^{o ' "} .7	105 ^{''} .36
18	8 52 22 ^{h m s} .70	16 33 59 ^{o ' "} .2	66 ^{''} .18	18	10 45 10 ^{h m s} .47	9 31 39 ^{o ' "} .8	105 ^{''} .93
19	8 54 47 ^{h m s} .01	16 27 18 ^{o ' "} .9	67 ^{''} .23	19	10 47 28 ^{h m s} .03	9 21 2 ^{o ' "} .5	106 ^{''} .50
20	8 57 11 ^{h m s} .19	16 20 32 ^{o ' "} .4	68 ^{''} .27	20	10 49 45 ^{h m s} .46	9 10 21 ^{o ' "} .8	107 ^{''} .06
21	8 59 35 ^{h m s} .24	16 13 39 ^{o ' "} .7	69 ^{''} .30	21	10 52 2 ^{h m s} .76	8 59 37 ^{o ' "} .8	107 ^{''} .61
22	9 1 59 ^{h m s} .16	16 6 40 ^{o ' "} .8	70 ^{''} .33	22	10 54 19 ^{h m s} .94	8 48 50 ^{o ' "} .5	108 ^{''} .14
23	9 4 22 ^{h m s} .94	15 59 35 ^{o ' "} .7	71 ^{''} .35	23	10 56 36 ^{h m s} .99	8 38 0 ^{o ' "} .1	108 ^{''} .66
24	9 6 46 ^{h m s} .59	N.15 52 24 ^{o ' "} .6	72 ^{''} .35	24	10 58 53 ^{h m s} .93	N. 8 27 6 ^{o ' "} .6	109 ^{''} .18

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
MONDAY 9.				WEDNESDAY 11.			
0	10 ^h 58 ^m 53 ^s 93	N. 8° 27' 6".6	109.18	0	12 ^h 46 ^m 41 ^s 68	S. 0° 53' 0".6	119.54
1	11 1 10 75	8 16 10.0	109.68	1	12 48 55 09	1 4 57.6	119.46
2	11 3 27 44	8 5 10.5	110.16	2	12 51 8 49	1 16 54.1	119.37
3	11 5 44 02	7 54 8.1	110.63	3	12 53 21 87	1 28 50.0	119.26
4	11 8 0 49	7 43 2.9	111.09	4	12 55 35 24	1 40 45.2	119.13
5	11 10 16 84	7 31 55.0	111.54	5	12 57 48 60	1 52 39.6	119.00
6	11 12 33 08	7 20 44.4	111.99	6	13 0 1 95	2 4 33.2	118.86
7	11 14 49 21	7 9 31.1	112.42	7	13 2 15 29	2 16 25.9	118.71
8	11 17 5 24	6 58 15.3	112.83	8	13 4 28 62	2 28 17.7	118.54
9	11 19 21 16	6 46 57.1	113.23	9	13 6 41 95	2 40 8.4	118.36
10	11 21 36 97	6 35 36.5	113.63	10	13 8 55 27	2 51 58.0	118.17
11	11 23 52 68	6 24 13.5	114.02	11	13 11 8 60	3 3 46.4	117.97
12	11 26 8 30	6 12 48.3	114.38	12	13 13 21 93	3 15 33.6	117.75
13	11 28 23 82	6 1 21.0	114.73	13	13 15 35 26	3 27 19.4	117.52
14	11 30 39 24	5 49 51.5	115.08	14	13 17 48 60	3 39 3.8	117.28
15	11 32 54 56	5 38 20.0	115.41	15	13 20 1 95	3 50 46.8	117.03
16	11 35 9 80	5 26 46.6	115.73	16	13 22 15 31	4 2 28.2	116.77
17	11 37 24 94	5 15 11.3	116.03	17	13 24 28 68	4 14 8.0	116.49
18	11 39 40 00	5 3 34.2	116.33	18	13 26 42 06	4 25 46.1	116.20
19	11 41 54 97	4 51 55.3	116.62	19	13 28 55 46	4 37 22.4	115.90
20	11 44 9 86	4 40 14.8	116.89	20	13 31 8 87	4 48 56.9	115.59
21	11 46 24 66	4 28 32.6	117.16	21	13 33 22 30	5 0 29.5	115.27
22	11 48 39 39	4 16 48.9	117.40	22	13 35 35 75	5 12 0.2	114.94
23	11 50 54 04	N. 4° 5' 3".8	117.63	23	13 37 49 22	S. 5° 23' 28.8	114.59
TUESDAY 10.				THURSDAY 12.			
0	11 53 8 61	N. 3° 53' 17.4	117.85	0	13 40 2 71	S. 5° 34' 55.3	114.23
1	11 55 23 11	3 41 29.6	118.07	1	13 42 16 23	5 46 19.6	113.87
2	11 57 37 54	3 29 40.5	118.28	2	13 44 29 77	5 57 41.7	113.49
3	11 59 51 91	3 17 50.3	118.46	3	13 46 43 34	6 9 1.5	113.10
4	12 2 6 21	3 5 59.0	118.63	4	13 48 56 94	6 20 18.9	112.69
5	12 4 20 44	2 54 6.7	118.79	5	13 51 10 56	6 31 33.8	112.28
6	12 6 34 61	2 42 13.5	118.94	6	13 53 24 22	6 42 46.2	111.86
7	12 8 48 73	2 30 19.4	119.08	7	13 55 37 02	6 53 56.1	111.43
8	12 11 2 78	2 18 24.5	119.21	8	13 57 51 64	7 5 3.3	110.98
9	12 13 16 78	2 6 28.9	119.33	9	14 0 5 40	7 16 7.8	110.52
10	12 15 30 73	1 54 32.6	119.43	10	14 2 19 20	7 27 9.5	110.04
11	12 17 44 63	1 42 35.8	119.51	11	14 4 33 03	7 38 8.3	109.56
12	12 19 58 48	1 30 38.5	119.58	12	14 6 46 01	7 49 4.2	109.07
13	12 22 12 28	1 18 40.8	119.65	13	14 9 0 82	7 59 57.1	108.57
14	12 24 26 04	1 6 42.7	119.70	14	14 11 14 77	8 10 47.0	108.06
15	12 26 39 76	0 54 44.4	119.73	15	14 13 28 77	8 21 33.8	107.53
16	12 28 53 44	0 42 45.9	119.76	16	14 15 42 81	8 32 17.4	106.99
17	12 31 7 08	0 30 47.3	119.78	17	14 17 56 89	8 42 57.7	106.44
18	12 33 20 68	0 18 48.6	119.78	18	14 20 11 02	8 53 34.7	105.89
19	12 35 34 25	N. 0° 6' 49.9	119.77	19	14 22 25 19	9 4 8.4	105.33
20	12 37 47 79	S. 0° 5' 8.7	119.75	20	14 24 39 41	9 14 38.6	104.75
21	12 40 1 30	0 17 7.1	119.72	21	14 26 53 67	9 25 5.4	104.17
22	12 42 14 79	0 29 5.3	119.67	22	14 29 7 99	9 35 28.6	103.57
23	12 44 28 25	0 41 3.1	119.61	23	14 31 22 35	9 45 48.2	102.96
24	12 46 41 68	S. 0° 53' 0".6	119.54	24	14 33 36 75	S. 9° 56' 4.1	102.34

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
FRIDAY 13.				SUNDAY 15.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	14 33 36.75	S. 9 56 4.1	102.34	0	16 22 3.15	S. 16 39 7.1	62.66
1	14 35 51.21	10 6 16.3	101.72	1	16 24 19.53	16 45 20.2	61.68
2	14 38 5.71	10 16 24.7	101.08	2	16 26 35.93	16 51 27.3	60.69
3	14 40 20.27	10 26 29.2	100.43	3	16 28 52.33	16 57 28.5	59.70
4	14 42 34.87	10 36 29.8	99.77	4	16 31 8.74	17 3 23.7	58.70
5	14 44 49.53	10 46 26.4	99.10	5	16 33 25.16	17 9 12.9	57.69
6	14 47 4.23	10 56 19.0	98.42	6	16 35 41.57	17 14 56.0	56.68
7	14 49 18.98	11 6 7.5	97.73	7	16 37 57.99	17 20 33.0	55.67
8	14 51 33.79	11 15 51.8	97.03	8	16 40 14.41	17 26 4.0	54.65
9	14 53 48.65	11 25 31.9	96.33	9	16 42 30.82	17 31 28.8	53.63
10	14 56 3.56	11 35 7.8	95.62	10	16 44 47.23	17 36 47.5	52.61
11	14 58 18.52	11 44 39.4	94.90	11	16 47 3.63	17 42 0.1	51.58
12	15 0 33.53	11 54 6.6	94.17	12	16 49 20.02	17 47 6.5	50.55
13	15 2 48.59	12 3 29.4	93.43	13	16 51 36.40	17 52 6.7	49.52
14	15 5 3.70	12 12 47.7	92.67	14	16 53 52.76	17 57 0.7	48.48
15	15 7 18.86	12 22 1.4	91.91	15	16 56 9.11	18 1 48.5	47.45
16	15 9 34.08	12 31 10.6	91.14	16	16 58 25.43	18 6 30.1	46.41
17	15 11 49.34	12 40 15.1	90.37	17	17 0 41.74	18 11 5.4	45.36
18	15 14 4.65	12 49 15.0	89.58	18	17 2 58.02	18 15 34.4	44.31
19	15 16 20.01	12 58 10.1	88.79	19	17 5 14.27	18 19 57.1	43.27
20	15 18 35.42	13 7 0.5	87.99	20	17 7 30.49	18 24 13.6	42.22
21	15 20 50.88	13 15 46.0	87.18	21	17 9 46.68	18 28 23.8	41.17
22	15 23 6.39	13 24 26.6	86.36	22	17 12 2.84	18 32 27.6	40.11
23	15 25 21.94	S. 13 33 2.3	85.53	23	17 14 18.96	S. 18 36 25.1	39.06
SATURDAY 14.				MONDAY 16.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	15 27 37.54	S. 13 41 33.0	84.70	0	17 16 35.04	S. 18 40 16.3	38.01
1	15 29 53.19	13 49 58.7	83.86	1	17 18 51.08	18 44 1.2	36.95
2	15 32 8.88	13 58 19.3	83.01	2	17 21 7.08	18 47 39.7	35.88
3	15 34 24.61	14 6 34.8	82.16	3	17 23 23.02	18 51 11.8	34.82
4	15 36 40.39	14 14 45.2	81.30	4	17 25 38.92	18 54 37.6	33.76
5	15 38 56.21	14 22 50.4	80.43	5	17 27 54.77	18 57 57.0	32.70
6	15 41 12.07	14 30 50.3	79.54	6	17 30 10.56	19 1 10.0	31.64
7	15 43 27.97	14 38 44.9	78.66	7	17 32 26.30	19 4 16.7	30.59
8	15 45 43.91	14 46 34.2	77.77	8	17 34 41.98	19 7 17.1	29.53
9	15 47 59.89	14 54 18.1	76.87	9	17 36 57.59	19 10 11.0	28.46
10	15 50 15.90	15 1 56.6	75.97	10	17 39 13.14	19 12 58.6	27.40
11	15 52 31.95	15 9 29.7	75.06	11	17 41 28.62	19 15 39.8	26.33
12	15 54 48.04	15 16 57.3	74.14	12	17 43 44.03	19 18 14.6	25.27
13	15 57 4.16	15 24 19.4	73.21	13	17 45 59.37	19 20 43.0	24.21
14	15 59 20.31	15 31 35.8	72.28	14	17 48 14.63	19 23 5.1	23.16
15	16 1 36.48	15 38 46.7	71.35	15	17 50 29.82	19 25 20.9	22.09
16	16 3 52.69	15 45 52.0	70.41	16	17 52 44.93	19 27 30.2	21.03
17	16 6 8.92	15 52 51.6	69.46	17	17 54 59.95	19 29 33.2	19.97
18	16 8 25.18	15 59 45.5	68.50	18	17 57 14.89	19 31 29.9	18.92
19	16 10 41.46	16 6 33.6	67.54	19	17 59 29.74	19 33 20.2	17.86
20	16 12 57.76	16 13 16.0	66.58	20	18 1 44.50	19 35 4.2	16.80
21	16 15 14.08	16 19 52.5	65.61	21	18 3 59.17	19 36 41.8	15.74
22	16 17 30.42	16 26 23.3	64.64	22	18 6 13.74	19 38 13.1	14.69
23	16 19 46.78	16 32 48.2	63.65	23	18 8 28.22	19 39 38.1	13.64
24	16 22 3.15	S. 16 39 7.1	62.66	24	18 10 42.60	S. 19 40 56.8	12.59

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
TUESDAY 17.				THURSDAY 19.			
0	18 10 42.60	S. 19 40 56.8	12.59	0	19 55 33.97	S. 18 45 49.2	34.08
1	18 12 56.87	19 42 9.2	11.54	1	19 57 41.09	18 42 22.1	34.95
2	18 15 11.04	19 43 15.3	10.49	2	19 59 48.02	18 38 49.8	35.82
3	18 17 25.10	19 44 15.1	9.45	3	20 1 54.78	18 35 12.3	36.68
4	18 19 39.05	19 45 8.7	8.41	4	20 4 1.36	18 31 29.7	37.52
5	18 21 52.89	19 45 56.0	7.37	5	20 6 7.75	18 27 42.1	38.36
6	18 24 6.61	19 46 37.1	6.33	6	20 8 13.97	18 23 49.4	39.21
7	18 26 20.22	19 47 12.0	5.29	7	20 10 20.01	18 19 51.6	40.05
8	18 28 33.71	19 47 40.6	4.26	8	20 12 25.87	18 15 48.8	40.87
9	18 30 47.07	19 48 3.1	3.23	9	20 14 31.55	18 11 41.1	41.69
10	18 33 0.31	19 48 19.4	2.20	10	20 16 37.04	18 7 28.5	42.51
11	18 35 13.43	19 48 29.5	1.18	11	20 18 42.36	18 3 16.9	43.33
12	18 37 26.42	19 48 33.5	0.16	12	20 20 47.50	17 58 48.5	44.13
13	18 39 39.28	19 48 31.4	0.86	13	20 22 52.46	17 54 21.3	44.94
14	18 41 52.01	19 48 23.2	1.88	14	20 24 57.24	17 49 49.2	45.74
15	18 44 4.60	19 48 8.9	2.89	15	20 27 1.83	17 45 12.4	46.53
16	18 46 17.05	19 47 48.5	3.91	16	20 29 6.25	17 40 30.8	47.32
17	18 48 29.37	19 47 22.0	4.91	17	20 31 10.49	17 35 44.5	48.10
18	18 50 41.55	19 46 49.6	5.91	18	20 33 14.55	17 30 53.6	48.88
19	18 52 53.59	19 46 11.1	6.91	19	20 35 18.43	17 25 58.0	49.65
20	18 55 5.48	19 45 26.6	7.91	20	20 37 22.13	17 20 57.8	50.42
21	18 57 17.23	19 44 36.2	8.90	21	20 39 25.66	17 15 53.0	51.18
22	18 59 28.82	19 43 39.8	9.89	22	20 41 29.00	17 10 43.7	51.93
23	19 1 40.27	S. 19 42 37.5	10.88	23	20 43 32.17	S. 17 5 29.9	52.68
WEDNESDAY 18.				FRIDAY 20.			
0	19 3 51.57	S. 19 41 29.3	11.86	0	20 45 35.16	S. 17 0 11.6	53.42
1	19 6 2.72	19 40 15.2	12.83	1	20 47 37.98	16 54 48.9	54.26
2	19 8 13.71	19 38 55.3	13.81	2	20 49 40.62	16 49 21.7	54.89
3	19 10 24.55	19 37 29.5	14.78	3	20 51 43.09	16 43 50.2	55.61
4	19 12 35.24	19 35 58.0	15.74	4	20 53 45.39	16 38 14.3	56.33
5	19 14 45.76	19 34 20.6	16.71	5	20 55 47.51	16 32 34.2	57.05
6	19 16 56.12	19 32 37.5	17.66	6	20 57 49.46	16 26 49.7	57.77
7	19 19 6.33	19 30 48.7	18.61	7	20 59 51.24	16 21 1.0	58.47
8	19 21 16.37	19 28 54.2	19.56	8	21 1 52.85	16 15 8.1	59.17
9	19 23 26.24	19 26 54.0	20.51	9	21 3 54.29	16 9 11.0	59.87
10	19 25 35.95	19 24 48.1	21.44	10	21 5 55.57	16 3 9.7	60.56
11	19 27 45.50	19 22 36.7	22.38	11	21 7 56.67	15 57 4.3	61.23
12	19 29 54.87	19 20 19.6	23.31	12	21 9 57.61	15 50 54.9	61.91
13	19 32 4.08	19 17 57.0	24.23	13	21 11 58.39	15 44 41.4	62.59
14	19 34 13.12	19 15 28.9	25.15	14	21 13 59.00	15 38 23.8	63.26
15	19 36 21.99	19 12 55.2	26.07	15	21 15 59.45	15 32 2.3	63.92
16	19 38 30.68	19 10 16.1	26.98	16	21 17 59.74	15 25 36.8	64.58
17	19 40 39.21	19 7 31.5	27.88	17	21 19 59.88	15 19 7.4	65.23
18	19 42 47.56	19 4 41.5	28.78	18	21 21 59.85	15 12 34.1	65.88
19	19 44 55.73	19 1 46.1	29.68	19	21 23 59.67	15 5 56.9	66.52
20	19 47 3.73	18 58 45.3	30.58	20	21 25 59.33	14 59 15.9	67.15
21	19 49 11.56	18 55 39.2	31.46	21	21 27 58.84	14 52 31.1	67.78
22	19 51 19.21	18 52 27.8	32.34	22	21 29 58.19	14 45 42.6	68.40
23	19 53 26.68	18 49 11.1	33.21	23	21 31 57.40	14 38 50.3	69.02
24	19 55 33.97	S. 18 45 49.2	34.08	24	21 33 56.45	S. 14 31 54.3	69.64

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SATURDAY 21.				MONDAY 23.			
0	21 33 56.45	S. 14 31 54.3	69.64	0	23 6 53.80	S. 7 56 50.6	93.01
1	21 35 55.36	14 24 54.6	70.25	1	23 8 48.06	7 47 31.5	93.37
2	21 37 54.12	14 17 51.3	70.84	2	23 10 42.29	7 38 10.2	93.73
3	21 39 52.74	14 10 44.5	71.44	3	23 12 36.48	7 28 46.8	94.08
4	21 41 51.21	14 3 34.0	72.04	4	23 14 30.64	7 19 21.3	94.43
5	21 43 49.55	13 56 20.0	72.63	5	23 16 24.77	7 9 53.7	94.77
6	21 45 47.74	13 49 2.5	73.21	6	23 18 18.87	7 0 24.1	95.10
7	21 47 45.80	13 41 41.5	73.78	7	23 20 12.96	6 50 52.5	95.43
8	21 49 43.72	13 34 17.1	74.35	8	23 22 7.02	6 41 19.0	95.75
9	21 51 41.51	13 26 49.3	74.92	9	23 24 1.07	6 31 43.5	96.07
10	21 53 39.16	13 19 18.1	75.48	10	23 25 55.10	6 22 6.1	96.39
11	21 55 36.69	13 11 43.5	76.04	11	23 27 49.12	6 12 26.8	96.71
12	21 57 34.09	13 4 5.6	76.59	12	23 29 43.13	6 2 45.6	97.02
13	21 59 31.36	12 56 24.4	77.13	13	23 31 37.14	5 53 2.6	97.31
14	22 1 28.51	12 48 40.0	77.67	14	23 33 31.14	5 43 17.9	97.60
15	22 3 25.54	12 40 52.3	78.21	15	23 35 25.15	5 33 31.4	97.89
16	22 5 22.45	12 33 1.5	78.73	16	23 37 19.16	5 23 43.2	98.18
17	22 7 19.24	12 25 7.5	79.26	17	23 39 13.18	5 13 53.3	98.46
18	22 9 15.91	12 17 10.3	79.78	18	23 41 7.20	5 4 1.7	98.73
19	22 11 12.47	12 9 10.1	80.29	19	23 43 1.24	4 54 8.6	98.99
20	22 13 8.92	12 1 6.8	80.81	20	23 44 55.29	4 44 13.8	99.26
21	22 15 5.26	11 53 0.4	81.32	21	23 46 49.36	4 34 17.5	99.52
22	22 17 1.50	11 44 51.0	81.82	22	23 48 43.45	4 24 19.6	99.77
23	22 18 57.63	S. 11 36 38.6	82.31	23	23 50 37.57	S. 4 14 20.3	100.01
SUNDAY 22.				TUESDAY 24.			
0	22 20 53.65	S. 11 28 23.3	82.79	0	23 52 31.71	S. 4 4 19.5	100.25
1	22 22 49.57	11 20 5.1	83.28	1	23 54 25.88	3 54 17.3	100.49
2	22 24 45.40	11 11 44.0	83.76	2	23 56 20.09	3 44 13.6	100.72
3	22 26 41.14	11 3 20.0	84.23	3	23 58 14.33	3 34 8.6	100.94
4	22 28 36.78	10 54 53.2	84.70	4	0 0 8.61	3 24 2.3	101.16
5	22 30 32.32	10 46 23.6	85.16	5	0 2 2.93	3 13 54.7	101.38
6	22 32 27.78	10 37 51.3	85.62	6	0 3 57.30	3 3 45.8	101.58
7	22 34 23.16	10 29 16.2	86.08	7	0 5 51.71	2 53 35.7	101.78
8	22 36 18.45	10 20 38.4	86.53	8	0 7 46.18	2 43 24.4	101.98
9	22 38 13.66	10 11 57.9	86.97	9	0 9 40.70	2 33 11.9	102.18
10	22 40 8.79	10 3 14.8	87.40	10	0 11 35.28	2 22 58.3	102.36
11	22 42 3.85	9 54 29.1	87.83	11	0 13 29.92	2 12 43.6	102.53
12	22 44 58.83	9 45 40.8	88.26	12	0 15 24.63	2 2 28.0	102.69
13	22 45 53.74	9 36 49.9	88.68	13	0 17 19.40	1 52 11.3	102.86
14	22 47 48.58	9 27 56.6	89.10	14	0 19 14.24	1 41 53.6	103.02
15	22 49 43.36	9 19 0.7	89.51	15	0 21 9.15	1 31 35.0	103.18
16	22 51 38.07	9 10 2.4	89.92	16	0 23 4.14	1 21 15.5	103.33
17	22 53 32.72	9 1 1.6	90.33	17	0 24 59.21	1 10 55.1	103.47
18	22 55 27.31	8 51 58.4	90.73	18	0 26 54.36	1 0 33.8	103.61
19	22 57 21.85	8 42 52.9	91.12	19	0 28 49.59	0 50 11.8	103.73
20	22 59 16.34	8 33 45.0	91.51	20	0 30 44.91	0 39 49.0	103.86
21	23 1 10.77	8 24 34.8	91.89	21	0 32 40.32	0 29 25.5	103.98
22	23 3 5.16	8 15 22.3	92.27	22	0 34 35.83	0 19 1.3	104.09
23	23 4 59.50	8 6 7.6	92.64	23	0 36 31.44	S. 0 8 36.4	104.20
24	23 6 53.80	S. 7 56 50.6	93.01	24	0 38 27.14	N. 0 1 49.1	104.29

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 25.				FRIDAY 27.			
0	^h 0 ^m 38 ^s 27.14	N. 0 1 49.1	104.29	0	^h 2 13 ^m 58.84	N. 8 20 4.4	100.26
1	0 40 22.95	0 12 15.1	104.38	1	2 16 3.14	8 30 5.1	99.96
2	0 42 18.86	0 22 41.7	104.47	2	2 18 7.68	8 40 3.9	99.65
3	0 44 14.88	0 33 8.8	104.55	3	2 20 12.47	8 50 0.9	99.34
4	0 46 11.02	0 43 36.3	104.62	4	2 22 17.51	8 59 56.0	99.02
5	0 48 7.28	0 54 4.2	104.68	5	2 24 22.80	9 9 49.2	98.70
6	0 50 3.65	1 4 32.5	104.74	6	2 26 28.34	9 19 40.4	98.35
7	0 52 0.14	1 15 1.1	104.79	7	2 28 34.14	9 29 29.4	97.99
8	0 53 56.76	1 25 30.0	104.84	8	2 30 40.20	9 39 16.3	97.63
9	0 55 53.51	1 35 59.2	104.87	9	2 32 46.51	9 49 1.0	97.26
10	0 57 50.39	1 46 28.5	104.90	10	2 34 53.09	9 58 43.5	96.88
11	0 59 47.41	1 56 58.0	104.93	11	2 36 59.93	10 8 23.6	96.48
12	1 1 44.57	2 7 27.6	104.94	12	2 39 7.03	10 18 1.3	96.08
13	1 3 41.86	2 17 57.3	104.95	13	2 41 14.40	10 27 36.6	95.67
14	1 5 39.30	2 28 27.0	104.95	14	2 43 22.05	10 37 9.3	95.24
15	1 7 36.89	2 38 56.7	104.95	15	2 45 29.96	10 46 39.5	94.81
16	1 9 34.62	2 49 26.4	104.94	16	2 47 38.15	10 56 7.0	94.36
17	1 11 32.51	2 59 56.0	104.92	17	2 49 46.61	11 5 31.8	93.90
18	1 13 30.56	3 10 25.4	104.89	18	2 51 55.35	11 14 53.8	93.43
19	1 15 28.76	3 20 54.7	104.86	19	2 54 4.37	11 24 13.0	92.96
20	1 17 27.13	3 31 23.7	104.82	20	2 56 13.66	11 33 29.3	92.47
21	1 19 25.66	3 41 52.5	104.77	21	2 58 23.24	11 42 42.6	91.97
22	1 21 24.36	3 52 20.9	104.70	22	3 0 33.10	11 51 52.9	91.46
23	1 23 23.23	N. 4 2 48.9	104.63	23	3 2 43.25	N. 12 1 0.1	90.93
THURSDAY 26.				SATURDAY 28.			
0	1 25 22.27	N. 4 13 16.5	104.56	0	3 4 53.67	N. 12 10 4.1	90.40
1	1 27 21.49	4 23 43.7	104.48	1	3 7 4.38	12 19 4.9	89.86
2	1 29 20.89	4 34 10.3	104.39	2	3 9 15.39	12 28 2.4	89.30
3	1 31 20.47	4 44 36.4	104.30	3	3 11 26.68	12 36 56.5	88.73
4	1 33 20.24	4 55 1.9	104.19	4	3 13 38.26	12 45 47.2	88.16
5	1 35 20.19	5 5 26.7	104.08	5	3 15 50.13	12 54 34.4	87.57
6	1 37 20.34	5 15 50.8	103.96	6	3 18 2.29	13 3 18.0	86.97
7	1 39 20.68	5 26 14.2	103.82	7	3 20 14.75	13 11 58.0	86.36
8	1 41 21.22	5 36 36.7	103.68	8	3 22 27.50	13 20 34.3	85.73
9	1 43 21.96	5 46 58.4	103.54	9	3 24 40.54	13 29 6.8	85.10
10	1 45 22.90	5 57 19.2	103.38	10	3 26 53.88	13 37 35.5	84.46
11	1 47 24.04	6 7 39.0	103.21	11	3 29 7.52	13 46 0.3	83.80
12	1 49 25.39	6 17 57.7	103.03	12	3 31 21.44	13 54 21.1	83.13
13	1 51 26.95	6 28 15.4	102.86	13	3 33 35.66	14 2 37.9	82.45
14	1 53 28.73	6 38 32.0	102.67	14	3 35 50.18	14 10 50.5	81.76
15	1 55 30.73	6 48 47.4	102.47	15	3 38 5.00	14 18 59.0	81.07
16	1 57 32.94	6 59 1.6	102.26	16	3 40 20.11	14 27 3.3	80.35
17	1 59 35.38	7 9 14.5	102.04	17	3 42 35.52	14 35 3.2	79.62
18	2 1 38.04	7 19 26.1	101.82	18	3 44 51.23	14 42 58.7	78.88
19	2 3 40.92	7 29 36.3	101.58	19	3 47 7.23	14 50 49.8	78.14
20	2 5 44.04	7 39 45.0	101.33	20	3 49 23.53	14 58 36.4	77.38
21	2 7 47.38	7 49 52.2	101.08	21	3 51 40.13	15 6 18.4	76.61
22	2 9 50.96	7 59 57.9	100.82	22	3 53 57.02	15 13 55.7	75.83
23	2 11 54.78	8 10 2.0	100.54	23	3 56 14.21	15 21 28.3	75.03
24	2 13 58.84	N. 8 20 4.4	100.26	24	3 58 31.69	N. 15 28 56.0	74.23

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
SUNDAY 29.				MONDAY 30.			
0	^h 3 ^m 58 ^s 31.69	N. 15° 28' 56.0	74.22	0	^h 4 ^m 54 ^s 56.66	N. 18° 1' 7.8	51.57
1	4 0 49.47	15 36 18.9	73.41	1	4 57 21.06	18 6 14.0	50.49
2	4 3 7.54	15 43 36.9	72.58	2	4 59 45.70	18 11 13.7	49.41
3	4 5 25.90	15 50 49.8	71.73	3	5 2 10.59	18 16 6.9	48.32
4	4 7 44.56	15 57 57.7	70.88	4	5 4 35.72	18 20 53.5	47.22
5	4 10 3.50	16 5 0.4	70.02	5	5 7 1.09	18 25 33.5	46.11
6	4 12 22.74	16 11 57.9	69.14	6	5 9 26.69	18 30 6.8	44.98
7	4 14 42.26	16 18 50.1	68.26	7	5 11 52.52	18 34 33.3	43.85
8	4 17 2.07	16 25 37.0	67.37	8	5 14 18.57	18 38 53.0	42.71
9	4 19 22.17	16 32 18.5	66.46	9	5 16 44.85	18 43 5.8	41.56
10	4 21 42.55	16 38 54.5	65.54	10	5 19 11.35	18 47 11.7	40.41
11	4 24 3.22	16 45 25.0	64.62	11	5 21 38.06	18 51 10.7	39.25
12	4 26 24.16	16 51 49.9	63.68	12	5 24 4.99	18 55 2.7	38.07
13	4 28 45.39	16 58 9.1	62.73	13	5 26 32.12	18 58 47.6	36.89
14	4 31 6.89	17 4 22.6	61.77	14	5 28 59.45	19 2 25.4	35.71
15	4 33 28.66	17 10 30.3	60.79	15	5 31 26.98	19 5 56.1	34.52
16	4 35 50.71	17 16 32.1	59.80	16	5 33 54.70	19 9 19.6	33.31
17	4 38 13.04	17 22 27.9	58.81	17	5 36 22.62	19 12 35.8	32.10
18	4 40 35.63	17 28 17.8	57.81	18	5 38 50.72	19 15 44.8	30.88
19	4 42 58.48	17 34 1.6	56.79	19	5 41 19.00	19 18 46.4	29.65
20	4 45 21.60	17 39 39.3	55.77	20	5 43 47.45	19 21 40.6	28.43
21	4 47 44.98	17 45 10.8	54.73	21	5 46 16.07	19 24 27.5	27.19
22	4 50 8.62	17 50 36.1	53.69	22	5 48 44.86	19 27 6.9	25.94
23	4 52 32.52	17 55 55.1	52.64	23	5 51 13.82	19 29 38.8	24.68
24	4 54 56.66	N. 18° 1' 7.8	51.57	24	5 53 42.93	N. 19° 32' 3.1	23.42

PHASES OF THE MOON.

Nov. 7	(	Last Quarter	-	-	-	-	-	-	-	-	^h 1 ^m 46.5
13	●	New Moon	-	-	-	-	-	-	-	-	22 55.5
21	)	First Quarter	-	-	-	-	-	-	-	-	18 46.5
29	○	Full Moon	-	-	-	-	-	-	-	-	13 0.4

Nov. 9	(	Perigee	-	-	-	-	-	-	-	-	^h 2
21	(	Apogee	-	-	-	-	-	-	-	-	14

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^b .	P.L. of diff.	VI ^b .	P.L. of diff.	IX ^b .	P.L. of diff.
1	Fomalhaut W.	78 50 50	2873	80 23 44	2860	81 56 54	2848	83 30 19	2838
	α Pegasi W.	64 8 18	2985	65 38 49	2966	67 9 45	2948	68 41 3	2930
	Jupiter W.	46 25 54	2561	48 5 42	2551	49 45 44	2543	51 25 58	2534
	α Arietis W.	21 58 40	3846	23 12 55	3676	24 30 8	3534	25 49 54	3416
	Pollux E.	60 27 23	2663	58 49 53	2656	57 12 14	2650	55 34 27	2645
	Mars E.	84 17 17	2751	82 41 45	2741	81 5 59	2732	79 30 1	2723
	Regulus E.	96 2 29	2586	94 23 15	2577	92 43 48	2568	91 4 9	2559
2	α Pegasi W.	76 22 43	2857	77 55 57	2845	79 29 26	2834	81 3 10	2823
	Jupiter W.	59 50 8	2492	61 31 32	2484	63 13 8	2477	64 54 54	2469
	α Arietis W.	32 56 49	3032	34 26 22	2981	35 56 58	2937	37 28 30	2898
	Pollux E.	47 23 56	2626	45 45 36	2624	44 7 14	2623	42 28 51	2624
	Mars E.	71 27 9	2678	69 50 0	2669	68 12 39	2662	66 35 8	2653
	Regulus E.	82 42 53	2517	81 2 4	2509	79 21 3	2501	77 39 51	2494
	Venus E.	112 18 52	2909	110 46 45	2901	109 14 27	2892	107 41 58	2884
3	Jupiter W.	73 26 21	2434	75 9 7	2427	76 52 3	2421	78 35 8	2414
	α Arietis W.	45 17 21	2749	46 52 56	2726	48 29 1	2706	50 5 33	2687
	Pollux E.	34 17 44	2650	32 39 57	2662	31 2 26	2677	29 25 16	2697
	Mars E.	58 24 53	2616	56 46 20	2610	55 7 38	2603	53 28 47	2596
	Regulus E.	69 11 18	2458	67 29 5	2452	65 46 44	2445	64 4 13	2438
	Venus E.	99 57 2	2845	98 23 33	2839	96 49 56	2832	95 16 9	2825
4	Jupiter W.	87 12 42	2385	88 56 38	2380	90 40 41	2375	92 24 52	2370
	α Arietis W.	58 14 2	2610	59 52 43	2598	61 31 41	2586	63 10 55	2575
	Aldebaran W.	24 39 3	2410	26 22 24	2405	28 5 52	2399	29 49 29	2394
	Mars E.	45 12 19	2566	43 32 37	2561	41 52 48	2555	40 12 51	2550
	Regulus E.	55 29 27	2409	53 46 5	2403	52 2 35	2398	50 18 57	2393
	Venus E.	87 25 7	2793	85 50 30	2788	84 15 46	2781	82 40 53	2776
	SUN E.	129 38 13	2765	128 2 59	2757	126 27 35	2751	124 52 3	2744
5	Jupiter W.	101 7 33	2346	102 52 25	2341	104 37 24	2337	106 22 29	2333
	α Arietis W.	71 30 34	2530	73 11 6	2522	74 51 48	2515	76 32 40	2508
	Aldebaran W.	38 29 22	2368	40 13 42	2364	41 58 9	2360	43 42 42	2355
	Regulus E.	41 38 58	2368	39 54 37	2363	38 10 9	2359	36 25 35	2355
	Venus E.	74 44 46	2750	73 9 12	2745	71 33 32	2740	69 57 45	2735
	SUN E.	116 52 17	2714	115 15 56	2710	113 39 29	2704	112 2 54	2698
6	α Arietis W.	84 59 10	2481	86 40 50	2476	88 22 37	2472	90 4 29	2469
	Aldebaran W.	52 27 2	2333	54 12 13	2330	55 57 28	2326	57 42 49	2322
	Venus E.	61 57 21	2714	60 21 0	2710	58 44 33	2705	57 8 0	2702
	SUN E.	103 58 20	2675	102 21 6	2671	100 43 47	2666	99 6 21	2663
7	α Arietis W.	98 34 56	2456	100 17 11	2455	101 59 28	2453	103 41 47	2453
	Aldebaran W.	66 30 54	2366	68 16 45	2362	70 2 41	2399	71 48 42	2396
	Pollux W.	24 7 9	2644	25 45 4	2601	27 23 58	2564	29 3 42	2533
	Venus E.	49 4 7	2685	47 27 7	2681	45 50 2	2679	44 12 54	2676
	SUN E.	90 57 57	2644	89 20 2	2640	87 42 2	2637	86 3 57	2635
8	Aldebaran W.	80 39 45	2284	82 26 8	2282	84 12 34	2280	85 59 4	2278
	Pollux W.	37 31 16	2433	39 14 3	2420	40 57 9	2408	42 40 32	2398
	Venus E.	36 6 22	2665	34 28 56	2663	32 51 26	2663	31 13 56	2661
	SUN E.	77 52 39	2622	76 14 14	2620	74 35 46	2618	72 57 15	2616

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
1	Fomalhaut W.	85 3 57	2828	86 37 49	2818	88 11 53	2809	89 46 9	2800
	α Pegasi W.	70 12 44	2914	71 44 45	2898	73 17 6	2883	74 49 46	2870
	Jupiter W.	53 6 24	2525	54 47 2	2517	56 27 52	2508	58 8 54	2500
	α Arietis W.	27 11 52	3315	28 35 46	3228	30 1 22	3154	31 28 26	3089
	Pollux E.	53 56 33	2640	52 18 32	2635	50 40 25	2632	49 2 13	2628
	Mars E.	77 53 51	2713	76 17 28	2704	74 40 54	2695	73 4 7	2687
	Regulus E.	89 24 18	2550	87 44 14	2542	86 3 59	2533	84 23 32	2525
2	α Pegasi W.	82 37 8	2813	84 11 19	2804	85 45 42	2796	87 20 15	2788
	Jupiter W.	66 36 51	2461	68 18 59	2455	70 1 16	2447	71 43 44	2440
	α Arietis W.	39 0 52	2862	40 34 0	2829	42 7 50	2800	43 42 18	2773
	Pollux E.	40 50 29	2626	39 12 9	2629	37 33 53	2634	35 55 44	2641
	Mars E.	64 57 25	2646	63 19 32	2638	61 41 29	2631	60 3 16	2623
	Regulus E.	75 58 29	2486	74 16 56	2479	72 35 13	2472	70 53 20	2465
	Venus E.	106 9 19	2876	104 36 29	2869	103 3 30	2861	101 30 21	2853
3	Jupiter W.	80 18 22	2408	82 1 45	2403	83 45 16	2397	85 28 55	2391
	α Arietis W.	51 42 30	2669	53 19 51	2652	54 57 35	2637	56 35 39	2623
	Pollux E.	27 48 32	2722	26 12 21	2753	24 36 51	2793	23 2 14	2844
	Mars E.	51 49 46	2590	50 10 37	2584	48 31 20	2577	46 51 54	2571
	Regulus E.	62 21 33	2432	60 38 44	2427	58 55 47	2420	57 12 41	2414
	Venus E.	93 42 14	2818	92 8 10	2811	90 33 57	2805	88 59 36	2799
4	Jupiter W.	94 9 10	2365	95 53 35	2360	97 38 7	2355	99 22 47	2351
	α Arietis W.	64 50 24	2565	66 30 7	2555	68 10 4	2546	69 50 13	2538
	Aldebaran W.	31 33 12	2388	33 17 4	2383	35 1 3	2378	36 45 9	2373
	Mars E.	38 32 47	2545	36 52 36	2540	35 12 18	2535	33 31 54	2531
	Regulus E.	48 35 12	2387	46 51 19	2382	45 7 19	2378	43 23 12	2373
	Venus E.	81 5 54	2770	79 30 47	2766	77 55 34	2760	76 20 13	2755
	Sun E.	123 16 22	2738	121 40 33	2732	120 4 36	2726	118 28 30	2720
5	Jupiter W.	108 7 41	2329	109 52 58	2324	111 38 22	2321	113 23 51	2317
	α Arietis W.	78 13 42	2502	79 54 52	2496	81 36 11	2491	83 17 37	2486
	Aldebaran W.	45 27 21	2350	47 12 8	2346	48 57 0	2342	50 41 58	2338
	Regulus E.	34 40 55	2350	32 56 8	2346	31 11 15	2342	29 26 16	2338
	Venus E.	68 21 52	2731	66 45 53	2726	65 9 48	2722	63 33 38	2717
	Sun E.	110 26 12	2693	108 49 23	2689	107 12 29	2684	105 35 27	2680
6	α Arietis W.	91 46 26	2466	93 28 27	2463	95 10 33	2460	96 52 43	2458
	Aldebaran W.	59 28 16	2319	61 13 48	2315	62 59 25	2312	64 45 7	2309
	Venus E.	55 31 23	2699	53 54 41	2695	52 17 54	2692	50 41 3	2688
	Sun E.	97 28 51	2658	95 51 15	2654	94 13 34	2651	92 35 48	2647
7	α Arietis W.	105 24 6	2453	107 6 26	2453	108 48 45	2455	110 31 2	2455
	Aldebaran W.	73 34 47	2293	75 20 56	2291	77 7 8	2288	78 53 25	2286
	Pollux W.	30 44 9	2507	32 25 13	2485	34 6 48	2465	35 48 50	2448
	Venus E.	42 35 42	2674	40 58 27	2671	39 21 8	2669	37 43 47	2666
	Sun E.	84 25 49	2632	82 47 37	2629	81 9 21	2627	79 31 2	2624
8	Aldebaran W.	87 45 36	2276	89 32 11	2275	91 18 47	2273	93 5 26	2272
	Pollux W.	44 24 9	2389	46 7 59	2381	47 52 1	2374	49 36 13	2378
	Venus E.	29 36 23	2660	27 58 50	2660	26 21 17	2660	24 43 43	2660
	Sun E.	71 18 42	2615	69 40 7	2614	68 1 31	2612	66 22 53	2612

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.		Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
9	Pollux	W.	51 20 34	2362	53 5 3	2357	54 49 39	2353	56 34 22	2350
	Mars	W.	22 49 51	2428	24 32 46	2425	26 15 45	2422	27 58 48	2421
	Regulus	W.	14 44 3	2271	16 30 45	2270	18 17 28	2270	20 4 12	2269
	SUN	E.	64 44 14	2612	63 5 35	2611	61 26 55	2612	59 48 16	2612
10	Pollux	W.	65 18 57	2339	67 4 0	2339	68 49 3	2338	70 34 7	2339
	Mars	W.	36 34 28	2417	38 17 38	2418	40 0 47	2419	41 43 55	2420
	Regulus	W.	28 57 51	2271	30 44 33	2273	32 31 12	2275	34 17 49	2276
	SUN	E.	51 35 19	2620	49 56 51	2622	48 18 26	2626	46 40 6	2629
11	Pollux	W.	79 19 3	2347	81 3 54	2350	82 48 40	2354	84 33 21	2358
	Mars	W.	50 18 57	2431	52 1 47	2435	53 44 32	2439	55 27 11	2443
	Regulus	W.	43 10 7	2289	44 56 22	2293	46 42 32	2298	48 28 35	2301
	SUN	E.	38 29 53	2656	36 52 14	2664	35 14 46	2672	33 37 28	2681
16	SUN	W.	25 35 21	3116	27 3 11	3123	28 30 52	3130	29 58 25	3139
	Fomalhaut	E.	75 14 0	2971	73 43 11	2990	72 12 45	3009	70 42 43	3029
	α Pegasi	E.	90 23 19	3002	88 53 9	3016	87 23 16	3031	85 53 42	3047
	Jupiter	E.	104 57 2	2665	103 19 35	2678	101 42 26	2692	100 5 35	2706
17	SUN	W.	37 13 11	3193	38 39 28	3204	40 5 32	3217	41 31 21	3228
	Fomalhaut	E.	63 18 52	3137	61 51 27	3160	60 24 30	3184	58 58 2	3209
	α Pegasi	E.	78 30 40	3128	77 3 5	3146	75 35 51	3164	74 8 58	3183
	Jupiter	E.	92 5 57	2774	90 30 55	2788	88 56 11	2801	87 21 44	2813
18	SUN	W.	48 36 58	3288	50 1 24	3300	51 25 36	3310	52 49 36	3322
	Fomalhaut	E.	51 53 37	3353	50 30 27	3386	49 7 54	3421	47 46 1	3457
	α Pegasi	E.	67 0 19	3282	65 35 47	3304	64 11 40	3326	62 47 58	3349
	Jupiter	E.	79 33 38	2876	78 0 48	2883	76 28 14	2900	74 55 55	2911
19	α Arietis	E.	109 54 22	3052	108 25 13	3061	106 56 16	3069	105 27 29	3078
	SUN	W.	59 46 24	3373	61 9 11	3383	62 31 47	3392	63 54 13	3400
	Fomalhaut	E.	41 7 39	3680	39 50 31	3735	38 34 21	3796	37 19 15	3862
	α Pegasi	E.	55 56 20	3475	54 35 28	3504	53 15 8	3534	51 55 21	3565
20	Jupiter	E.	67 17 44	2962	65 46 44	2972	64 15 56	2981	62 45 19	2989
	α Arietis	E.	98 6 14	3121	96 38 30	3129	95 10 56	3138	93 43 32	3145
	SUN	W.	70 44 5	3438	72 5 39	3444	73 27 6	3448	74 48 28	3454
	α Pegasi	E.	45 25 37	3752	44 9 45	3798	42 54 40	3848	41 40 27	3901
21	Jupiter	E.	55 14 45	3026	53 45 5	3032	52 15 32	3038	50 46 6	3043
	α Arietis	E.	86 28 48	3181	85 2 16	3188	83 35 53	3194	82 9 36	3200
	SUN	W.	81 33 59	3472	82 54 54	3474	84 15 47	3476	85 36 38	3477
	α Pegasi	E.	35 44 26	4256	34 36 53	4352	33 30 48	4459	32 26 20	4580
22	Jupiter	E.	43 20 23	3063	41 51 28	3065	40 22 35	3067	38 53 45	3069
	α Arietis	E.	74 59 55	3226	73 34 17	3231	72 8 44	3235	70 43 16	3239
	Aldebaran	E.	106 47 50	3067	105 19 0	3069	103 50 12	3070	102 21 25	3071
	SUN	W.	92 20 48	3474	93 41 41	3472	95 2 37	3470	96 23 35	3466
23	α Aquilæ	W.	43 45 25	4308	44 52 10	4242	45 59 57	4182	47 8 40	4126
	Jupiter	E.	31 29 55	3070	30 1 9	3069	28 32 22	3068	27 3 33	3067
	α Arietis	E.	63 37 3	3256	62 12 0	3259	60 47 1	3263	59 22 6	3266
	Aldebaran	E.	94 57 41	3069	93 28 53	3066	92 0 2	3064	90 31 9	3061
23	SUN	W.	103 9 32	3443	104 31 0	3436	105 52 36	3430	107 14 19	3423

MEAN TIME.
LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.		Midnight.	P.L. of diff.	XV ^b .	P.L. of diff.	XVIII ^b .	P.L. of diff.	XXI ^b .	P.L. of diff.
9	Pollux	W.	58 19 9	2346	60 4 2	2344	61 48 58	2342	63 33 56	2340
	Mars	W.	29 41 53	2419	31 25 0	2418	33 8 9	2417	34 51 19	2418
	Regulus	W.	21 50 57	2270	23 37 41	2270	25 24 25	2270	27 11 9	2271
	SUN	E.	58 9 38	2613	56 31 0	2614	54 52 24	2615	53 13 50	2618
10	Pollux	W.	72 19 10	2340	74 4 12	2341	75 49 12	2343	77 34 9	2345
	Mars	W.	43 27 1	2422	45 10 5	2424	46 53 6	2426	48 36 3	2429
	Regulus	W.	36 4 24	2278	37 50 56	2281	39 37 24	2283	41 23 48	2287
	SUN	E.	45 1 50	2634	43 23 41	2638	41 45 37	2643	40 7 41	2649
11	Pollux	W.	86 17 56	2362	88 2 25	2367	89 46 47	2373	91 31 1	2378
	Mars	W.	57 9 45	2448	58 52 12	2452	60 34 33	2457	62 16 46	2463
	Regulus	W.	50 14 33	2306	52 0 23	2311	53 46 7	2317	55 31 42	2324
	SUN	E.	32 0 23	2692	30 23 32	2704	28 46 57	2717	27 10 39	2732
16	SUN	W.	31 25 47	3149	32 52 57	3160	34 19 54	3170	35 46 39	3181
	Fomalhaut	E.	69 13 6	3048	67 43 53	3070	66 15 7	3091	64 46 46	3113
	α Pegasi	E.	84 24 27	3062	82 55 30	3078	81 26 53	3094	79 58 36	3111
	Jupiter	E.	98 29 3	2720	96 52 50	2733	95 16 54	2747	93 41 17	2760
17	SUN	W.	42 56 57	3241	44 22 18	3252	45 47 26	3264	47 12 19	3276
	Fomalhaut	E.	57 32 4	3236	56 6 38	3264	54 41 44	3292	53 17 23	3322
	α Pegasi	E.	72 42 28	3202	71 16 21	3221	69 50 37	3241	68 25 16	3261
	Jupiter	E.	85 47 33	2827	84 13 40	2839	82 40 3	2852	81 6 43	2864
18	SUN	W.	54 13 22	3332	55 36 56	3344	57 0 17	3354	58 23 26	3364
	Fomalhaut	E.	46 24 49	3496	45 4 20	3537	43 44 37	3581	42 25 42	3629
	α Pegasi	E.	61 24 43	3372	60 1 55	3396	58 39 34	3422	57 17 42	3448
	Jupiter	E.	73 23 50	2921	71 51 58	2933	70 20 21	2943	68 48 56	2953
	α Arietis	E.	103 58 53	3087	102 30 27	3096	101 2 12	3105	99 34 8	3113
19	SUN	W.	65 16 29	3408	66 38 36	3416	68 0 34	3424	69 22 23	3431
	Fomalhaut	E.	36 5 17	3935	34 52 33	4017	33 41 10	4106	32 31 14	4207
	α Pegasi	E.	50 36 8	3598	49 17 32	3633	47 59 33	3670	46 42 14	3710
	Jupiter	E.	61 14 53	2997	59 44 37	3005	58 14 31	3013	56 44 34	3019
	α Arietis	E.	92 16 17	3153	90 49 12	3160	89 22 15	3168	87 55 27	3175
20	SUN	W.	76 9 43	3459	77 30 53	3463	78 51 59	3467	80 13 0	3469
	α Pegasi	E.	40 27 8	3959	39 14 47	4023	38 3 30	4093	36 53 21	4170
	Jupiter	E.	49 16 47	3048	47 47 34	3052	46 18 26	3056	44 49 22	3060
	α Arietis	E.	80 43 27	3206	79 17 25	3211	77 51 29	3216	76 25 39	3221
21	SUN	W.	86 57 28	3478	88 18 17	3477	89 39 7	3477	90 59 57	3476
	α Pegasi	E.	31 23 38	4718	30 22 53	4874	29 24 17	5052	28 28 2	5256
	Jupiter	E.	37 24 57	3070	35 56 11	3070	34 27 25	3071	32 58 40	3071
	α Arietis	E.	69 17 53	3242	67 52 34	3246	66 27 19	3250	65 2 9	3253
	Aldebaran	E.	100 52 40	3072	99 23 56	3072	97 55 12	3071	96 26 27	3070
22	SUN	W.	97 44 37	3462	99 5 43	3458	100 26 54	3454	101 48 10	3448
	α Aquilæ	W.	48 18 17	4074	49 28 44	4025	50 39 59	3980	51 51 58	3938
	Jupiter	E.	25 34 43	3065	24 5 51	3063	22 36 56	3061	21 7 59	3060
	α Arietis	E.	57 57 15	3269	56 32 27	3273	55 7 44	3276	53 43 5	3280
	Aldebaran	E.	89 2 12	3057	87 33 10	3054	86 4 4	3049	84 34 52	3045
23	SUN	W.	108 36 10	3416	109 58 9	3407	111 20 18	3399	112 42 36	3389

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
23	α Aquilæ W.	53 4 39	3898	54 18 1	3860	55 32 1	3825	56 46 37	3792
	α Arietis E.	52 18 30	3284	50 54 0	3290	49 29 37	3294	48 5 19	3300
	Aldebaran E.	83 5 35	3039	81 36 10	3034	80 6 39	3027	78 37 0	3020
24	SUN W.	114 5 5	3380	115 27 44	3371	116 50 34	3360	118 13 36	3350
	α Aquilæ W.	63 7 54	3645	64 25 40	3619	65 43 54	3594	67 2 35	3569
	Fomalhaut W.	30 4 3	4287	31 11 8	4166	32 20 6	4059	33 30 48	3964
	α Arietis E.	41 6 0	3349	39 42 45	3364	38 19 47	3382	36 57 10	3402
	Aldebaran E.	71 6 26	2980	69 35 49	2970	68 4 59	2961	66 33 58	2951
	Pollux E.	114 54 36	3046	113 25 20	3035	111 55 51	3024	110 26 8	3013
25	SUN W.	125 11 52	3294	126 36 11	3281	128 0 45	3269	129 25 33	3256
	α Aquilæ W.	73 42 20	3460	75 3 29	3440	76 25 0	3421	77 46 52	3402
	Fomalhaut W.	39 45 27	3606	41 3 55	3552	42 23 22	3500	43 43 46	3453
	Aldebaran E.	58 55 32	2896	57 23 8	2884	55 50 29	2872	54 17 34	2859
	Pollux E.	102 53 58	2953	101 22 46	2941	99 51 19	2928	98 19 35	2915
26	α Aquilæ W.	84 41 26	3316	86 5 19	3301	87 29 30	3286	88 53 58	3271
	Fomalhaut W.	50 38 4	3256	52 3 7	3223	53 28 49	3191	54 55 9	3161
	α Pegasi W.	37 39 25	3779	38 54 49	3700	40 11 36	3628	41 29 40	3561
	Jupiter W.	17 13 29	2818	18 47 33	2801	20 1 59	2784	21 56 48	2767
	Aldebaran E.	46 28 52	2794	44 54 16	2780	43 19 22	2766	41 44 10	2753
	Pollux E.	90 36 46	2848	89 3 20	2835	87 29 37	2821	85 55 36	2807
27	α Aquilæ W.	96 0 19	3209	97 26 18	3198	98 52 30	3189	100 18 52	3180
	Fomalhaut W.	62 15 26	3027	63 45 5	3003	65 15 14	2980	66 45 52	2958
	α Pegasi W.	48 16 41	3295	49 40 59	3252	51 6 7	3211	52 32 3	3173
	Jupiter W.	29 56 11	2689	31 33 5	2675	33 10 19	2660	34 47 53	2644
	Aldebaran E.	33 43 32	2682	32 6 28	2668	30 29 5	2653	28 51 22	2640
	Pollux E.	78 1 1	2738	76 25 12	2725	74 49 5	2712	73 12 41	2697
	Mars E.	113 10 10	2804	111 35 48	2790	110 1 7	2775	108 26 6	2759
28	Fomalhaut W.	74 25 45	2858	75 58 58	2840	77 32 34	2822	79 6 33	2805
	α Pegasi W.	59 52 22	3012	61 22 20	2984	62 52 53	2958	64 23 58	2933
	Jupiter W.	43 0 42	2572	44 40 15	2559	46 20 6	2545	48 0 17	2532
	Pollux E.	65 6 15	2635	63 28 7	2623	61 49 44	2612	60 11 5	2601
	Mars E.	100 26 6	2686	98 49 7	2672	97 11 49	2657	95 34 12	2643
	Regulus E.	100 45 44	2568	99 6 5	2554	97 26 6	2541	95 45 50	2527
29	Fomalhaut W.	87 1 36	2733	88 37 32	2720	90 13 45	2708	91 50 14	2698
	α Pegasi W.	72 6 49	2826	73 40 43	2808	75 15 1	2791	76 49 41	2774
	Jupiter W.	56 25 44	2467	58 7 43	2455	59 49 59	2444	61 32 31	2432
	α Arietis W.	28 55 45	3142	30 23 4	3064	31 51 58	2996	33 22 16	2936
	Pollux E.	51 54 18	2553	50 14 19	2546	48 34 10	2539	46 53 51	2533
	Regulus E.	87 19 51	2464	85 37 47	2451	83 55 25	2439	82 12 46	2428
	Mars E.	87 21 28	2576	85 42 0	2564	84 2 16	2551	82 22 14	2540
30	α Pegasi W.	84 48 0	2707	86 24 31	2696	88 1 16	2686	89 38 14	2677
	Jupiter W.	70 9 8	2380	71 53 12	2371	73 37 29	2362	75 21 59	2353
	α Arietis W.	41 10 15	2721	42 46 27	2689	44 23 22	2660	46 0 55	2634
	Pollux E.	38 30 50	2523	36 50 8	2526	35 9 31	2531	33 29 1	2540
	Regulus E.	73 35 37	2375	71 51 27	2366	70 7 3	2357	68 22 26	2348
	Mars E.	73 58 5	2485	72 16 30	2474	70 34 40	2465	68 52 38	2455

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
23	α Aquilæ W.	58 1 48	3759	59 17 33	3729	60 33 49	3699	61 50 37	3672
	α Arietis E.	46 41 8	3307	45 17 5	3316	43 53 12	3325	42 29 30	3336
	Aldebaran E.	77 7 12	3013	75 37 15	3005	74 7 9	2997	72 36 53	2989
24	Sun W.	119 36 49	3339	121 0 15	3328	122 23 54	3317	123 47 46	3305
	α Aquilæ W.	68 21 43	3546	69 41 16	3525	71 1 13	3502	72 21 35	3481
	Fomalhaut W.	34 43 3	3878	35 56 45	3800	37 11 47	3730	38 28 2	3665
	α Arietis E.	35 34 55	3427	34 13 9	3456	32 51 55	3490	31 31 20	3531
	Aldebaran E.	65 2 44	2940	63 31 16	2930	61 59 36	2919	60 27 41	2908
	Pollux E.	108 56 11	3001	107 26 0	2989	105 55 34	2978	104 24 54	2966
25	Sun W.	130 50 36	3243	132 15 54	3230	133 41 27	3218	135 7 15	3204
	α Aquilæ W.	79 9 6	3384	80 31 41	3366	81 54 36	3349	83 17 51	3332
	Fomalhaut W.	45 5 3	3408	46 27 10	3367	47 50 4	3328	49 13 43	3291
	Aldebaran E.	52 44 23	2847	51 10 56	2834	49 37 12	2821	48 3 11	2807
	Pollux E.	96 47 35	2902	95 15 19	2888	93 42 45	2875	92 9 54	2862
26	α Aquilæ W.	90 18 44	3258	91 43 45	3244	93 9 2	3231	94 34 34	3220
	Fomalhaut W.	56 22 5	3133	57 49 35	3104	59 17 40	3078	60 46 17	3052
	α Pegasi W.	42 48 57	3500	44 9 21	3443	45 30 49	3390	46 53 17	3341
	Jupiter W.	23 31 59	2751	25 7 31	2735	26 43 24	2720	28 19 37	2704
	Aldebaran E.	40 8 40	2738	38 32 51	2724	36 56 43	2710	35 20 17	2696
	Pollux E.	84 21 17	2793	82 46 40	2779	81 11 45	2766	79 36 32	2752
27	α Aquilæ W.	101 45 25	3173	103 12 6	3166	104 38 56	3161	106 5 52	3156
	Fomalhaut W.	68 16 58	2936	69 48 31	2916	71 20 30	2895	72 52 55	2876
	α Pegasi W.	53 58 44	3137	55 26 8	3103	56 54 14	3071	58 22 59	3040
	Jupiter W.	36 25 48	2630	38 4 2	2615	39 42 36	2601	41 21 29	2587
	Aldebaran E.	27 13 21	2626	25 35 1	2611	23 56 21	2598	22 17 23	2584
	Pollux E.	71 35 57	2685	69 58 57	2672	68 21 40	2660	66 44 6	2647
	Mars E.	106 50 45	2744	105 15 4	2730	103 39 4	2716	102 2 45	2701
28	Fomalhaut W.	80 40 54	2790	82 15 35	2774	83 50 37	2760	85 25 57	2746
	α Pegasi W.	65 55 35	2909	67 27 42	2887	69 0 17	2866	70 33 20	2845
	Jupiter W.	49 40 46	2519	51 21 33	2505	53 2 39	2492	54 44 3	2480
	Pollux E.	58 32 11	2590	56 53 2	2580	55 13 40	2571	53 34 5	2562
	Mars E.	93 56 16	2630	92 18 2	2616	90 39 28	2603	89 0 37	2590
	Regulus E.	94 5 14	2514	92 24 21	2501	90 43 9	2488	89 1 39	2475
29	Fomalhaut W.	93 26 57	2687	95 3 54	2677	96 41 4	2669	98 18 25	2661
	α Pegasi W.	78 24 43	2759	80 0 5	2744	81 35 46	2731	83 11 45	2719
	Jupiter W.	63 15 20	2421	64 58 24	2410	66 41 44	2400	68 25 19	2390
	α Arietis W.	34 53 49	2883	36 26 30	2836	38 0 11	2793	39 34 48	2755
	Pollux E.	45 13 24	2529	43 32 51	2525	41 52 13	2523	40 11 32	2522
	Regulus E.	80 29 51	2417	78 46 41	2406	77 3 15	2395	75 19 33	2385
	Mars E.	80 41 56	2528	79 1 22	2516	77 20 31	2506	75 39 26	2495
30	α Pegasi W.	91 15 25	2669	92 52 46	2663	94 30 16	2657	96 7 54	2652
	Jupiter W.	77 6 42	2344	78 51 37	2336	80 36 44	2329	82 22 1	2322
	α Arietis W.	47 39 4	2611	49 17 44	2589	50 56 55	2568	52 36 34	2550
	Pollux E.	31 48 43	2551	30 8 40	2566	28 28 58	2587	26 49 45	2613
	Regulus E.	66 37 36	2339	64 52 34	2331	63 7 20	2324	61 21 55	2316
	Mars E.	67 10 22	2446	65 27 53	2438	63 45 13	2430	62 2 21	2422

Day of the Month.	AIRY's Day Numbers— For correcting the Places of the Fixed Stars.					Mean Time of Transit of the First Point of Aries.
	At Mean Midnight,					
	Logarithms of				Value of L	
	E	F	G	H		
1	1°59542	1°58104	0°25465	1°50759	33°446	9 14 16°93
2	1°59306	1°58412	0°25521	1°50777	33°301	9 10 21°02
3	1°59066	1°58715	0°25579	1°50795	33°162	9 6 25°11
4	1°58819	1°59011	0°25637	1°50813	33°033	9 2 29°20
5	1°58565	1°59300	0°25696	1°50832	32°915	8 58 33°29
6	1°58306	1°59585	0°25755	1°50851	32°804	8 54 37°38
7	1°58039	1°59862	0°25815	1°50870	32°704	8 50 41°47
8	1°57765	1°60130	0°25876	1°50888	32°614	8 46 45°57
9	1°57486	1°60394	0°25937	1°50906	32°532	8 42 49°66
10	1°57200	1°60651	0°25999	1°50924	32°460	8 38 53°75
11	1°56907	1°60901	0°26062	1°50943	32°399	8 34 57°84
12	1°56609	1°61146	0°26125	1°50961	32°346	8 31 1°93
13	1°56304	1°61384	0°26189	1°50979	32°304	8 27 6°02
14	1°55991	1°61614	0°26254	1°50997	32°272	8 23 10°11
15	1°55673	1°61840	0°26319	1°51015	32°247	8 19 14°20
16	1°55348	1°62058	0°26385	1°51032	32°233	8 15 18°29
17	1°55015	1°62269	0°26451	1°51049	32°230	8 11 22°38
18	1°54677	1°62475	0°26518	1°51066	32°236	8 7 26°47
19	1°54332	1°62674	0°26585	1°51082	32°252	8 3 30°56
20	1°53979	1°62866	0°26653	1°51098	32°279	7 59 34°65
21	1°53621	1°63053	0°26722	1°51113	32°315	7 55 38°74
22	1°53255	1°63233	0°26791	1°51128	32°361	7 51 42°83
23	1°52882	1°63407	0°26861	1°51142	32°416	7 47 46°92
24	1°52504	1°63575	0°26931	1°51156	32°480	7 43 51°01
25	1°52118	1°63736	0°27002	1°51169	32°555	7 39 55°10
26	1°51723	1°63891	0°27073	1°51182	32°642	7 35 59°19
27	1°51323	1°64041	0°27145	1°51194	32°737	7 32 3°28
28	1°50915	1°64184	0°27217	1°51205	32°842	7 28 7°37
29	1°50500	1°64319	0°27289	1°51216	32°958	7 24 11°46
30	1°50079	1°64449	0°27362	1°51226	33°082	7 20 15°55
31	1°49650	1°64572	0°27435	1°51236	33°216	7 16 19°64

Day of the Month.	BESSEL'S Day Numbers— For correcting the Places of the Fixed Stars.				Days elapsed of the Julian Period at Mean Noon.	Mean Equinoctial Time, adding 0 ^s .269681.	From Mean Noon of January 1.	
	At Mean Midnight,						Day of the Year.	Fraction of the Year.*
	Logarithms of							
	A	B	C	D		Days.		
1	+1.1582	+1.1176	+9.7763	+0.8561	2403638	224	305	.8351
2	1.1517	1.1265	9.7780	0.8569	2403639	225	306	.8378
3	1.1450	1.1351	9.7797	0.8578	2403640	226	307	.8405
4	+1.1381	+1.1435	+9.7815	+0.8586	2403641	227	308	.8433
5	1.1309	1.1515	9.7832	0.8594	2403642	228	309	.8460
6	1.1234	1.1593	9.7850	0.8602	2403643	229	310	.8488
7	+1.1157	+1.1668	+9.7867	+0.8611	2403644	230	311	.8515
8	1.1077	1.1741	9.7885	0.8619	2403645	231	312	.8542
9	1.0994	1.1811	9.7903	0.8627	2403646	232	313	.8570
10	+1.0908	+1.1878	+9.7922	+0.8635	2403647	233	314	.8597
11	1.0819	1.1944	9.7940	0.8643	2403648	234	315	.8624
12	1.0726	1.2007	9.7959	0.8652	2403649	235	316	.8652
13	+1.0630	+1.2068	+9.7977	+0.8660	2403650	236	317	.8679
14	1.0531	1.2127	9.7996	0.8667	2403651	237	318	.8707
15	1.0428	1.2183	9.8015	0.8675	2403652	238	319	.8734
16	+1.0321	+1.2238	+9.8033	+0.8683	2403653	239	320	.8761
17	1.0209	1.2291	9.8053	0.8690	2403654	240	321	.8789
18	1.0094	1.2341	9.8072	0.8697	2403655	241	322	.8816
19	+0.9973	+1.2390	+9.8092	+0.8704	2403656	242	323	.8843
20	0.9848	1.2437	9.8111	0.8711	2403657	243	324	.8871
21	0.9718	1.2482	9.8131	0.8718	2403658	244	325	.8898
22	+0.9582	+1.2526	+9.8150	+0.8724	2403659	245	326	.8926
23	0.9441	1.2567	9.8170	0.8731	2403660	246	327	.8953
24	0.9293	1.2607	9.8190	0.8737	2403661	247	328	.8980
25	+0.9139	+1.2645	+9.8210	+0.8742	2403662	248	329	.9008
26	0.8977	1.2682	9.8230	0.8748	2403663	249	330	.9035
27	0.8808	1.2716	9.8250	0.8753	2403664	250	331	.9062
28	+0.8631	+1.2750	+9.8270	+0.8758	2403665	251	332	.9090
29	0.8444	1.2781	9.8290	0.8763	2403666	252	333	.9117
30	0.8248	1.2811	9.8310	0.8767	2403667	253	334	.9145
31	+0.8040	+1.2840	+9.8330	+0.8771	2403668	254	335	.9172

* Add .0012 if Fraction be required for the time t , see page 329.

AT APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Sidereal Time of the Semidiam. passing the Meridian.*	Equation of Time, to be subtr. from added to Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
		^h ^m ^s	^s	[°] ['] ["]	["]	^m ^s	^m ^s	^s
Tues.	1	16 31 51.55	10.812	S. 21 54 31.1	22.72	1 10.34	10 35.39	0.953
Wed.	2	16 36 11.36	10.838	22 3 23.7	21.66	1 10.42	10 12.21	0.979
Thur.	3	16 40 31.79	10.864	22 11 50.8	20.59	1 10.50	9 48.40	1.005
Frid.	4	16 44 52.82	10.888	22 19 52.2	19.51	1 10.58	9 23.99	1.029
Sat.	5	16 49 14.42	10.912	22 27 27.5	18.42	1 10.65	8 59.01	1.052
Sun.	6	16 53 36.58	10.935	22 34 36.5	17.33	1 10.72	8 33.48	1.075
Mon.	7	16 57 59.27	10.956	22 41 19.1	16.22	1 10.79	8 7.42	1.096
Tues.	8	17 2 22.46	10.976	22 47 34.9	15.10	1 10.85	7 40.86	1.116
Wed.	9	17 6 46.13	10.995	22 53 23.9	13.97	1 10.91	7 13.83	1.136
Thur.	10	17 11 10.24	11.013	22 58 45.7	12.84	1 10.97	6 46.35	1.154
Frid.	11	17 15 34.76	11.030	23 3 40.3	11.70	1 11.02	6 18.45	1.170
Sat.	12	17 19 59.66	11.045	23 8 7.4	10.55	1 11.07	5 50.19	1.185
Sun.	13	17 24 24.91	11.058	23 12 6.9	9.40	1 11.11	5 21.58	1.198
Mon.	14	17 28 50.46	11.070	23 15 38.7	8.24	1 11.15	4 52.67	1.210
Tues.	15	17 33 16.27	11.080	23 18 42.6	7.08	1 11.18	4 23.49	1.220
Wed.	16	17 37 42.31	11.089	23 21 18.6	5.91	1 11.21	3 54.09	1.229
Thur.	17	17 42 8.53	11.096	23 23 26.4	4.74	1 11.23	3 24.50	1.236
Frid.	18	17 46 34.91	11.102	23 25 6.2	3.57	1 11.25	2 54.76	1.242
Sat.	19	17 51 1.41	11.106	23 26 17.6	2.39	1 11.27	2 24.90	1.246
Sun.	20	17 55 27.99	11.109	23 27 0.8	1.21	1 11.28	1 54.96	1.248
Mon.	21	17 59 54.62	11.110	23 27 15.7	0.03	1 11.29	1 24.98	1.249
Tues.	22	18 4 21.24	11.109	23 27 2.2	1.15	1 11.29	0 54.99	1.249
Wed.	23	18 8 47.84	11.107	23 26 20.3	2.33	1 11.29	0 25.03	1.247
Thur.	24	18 13 14.39	11.104	23 25 10.2	3.51	1 11.28	0 4.87	1.244
Frid.	25	18 17 40.85	11.100	23 23 31.8	4.69	1 11.27	0 34.69	1.240
Sat.	26	18 22 7.19	11.094	23 21 25.1	5.87	1 11.25	1 4.39	1.234
Sun.	27	18 26 33.37	11.087	23 18 50.2	7.04	1 11.23	1 33.94	1.227
Mon.	28	18 30 59.37	11.079	23 15 47.3	8.21	1 11.20	2 3.30	1.218
Tues.	29	18 35 25.15	11.069	23 12 16.3	9.37	1 11.17	2 32.45	1.209
Wed.	30	18 39 50.69	11.058	23 8 17.5	10.53	1 11.14	3 1.35	1.198
Thur.	31	18 44 15.95	11.046	23 3 50.9	11.68	1 11.10	3 29.98	1.187
Frid.	32	18 48 40.92	11.034	S. 22 58 56.7	12.83	1 11.06	3 58.31	1.174

* Mean Time of the Semidiameter passing may be found by subtracting 0^m.19 from the Sidereal Time.

AT MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S			Equation of Time, to be added to subtr. from Mean Time.	Sidereal Time.
		Apparent Right Ascension.	Apparent Declination.	Semidiam.*		
		^h ^m ^s	[°] ['] ["]	['] ["]	^m ^s	^h ^m ^s
Tues.	1	16 31 53.46	S. 21 54 35.1	16 15.9	10 35 22	16 42 28.68
Wed.	2	16 36 13.20	22 3 27.4	16 16.1	10 12.04	16 46 25.24
Thur.	3	16 40 33.56	22 11 54.2	16 16.2	9 48.24	16 50 21.80
Frid.	4	16 44 54.52	22 19 55.2	16 16.4	9 23.83	16 54 18.35
Sat.	5	16 49 16.05	22 27 30.2	16 16.5	8 58.85	16 58 14.90
Sun.	6	16 53 38.14	22 34 39.0	16 16.6	8 33.32	17 2 11.46
Mon.	7	16 58 0.75	22 41 21.3	16 16.7	8 7.27	17 6 8.02
Tues.	8	17 2 23.86	22 47 36.9	16 16.8	7 40.72	17 10 4.58
Wed.	9	17 6 47.45	22 53 25.6	16 16.9	7 13.69	17 14 1.14
Thur.	10	17 11 11.48	22 58 47.2	16 17.0	6 46.22	17 17 57.70
Frid.	11	17 15 35.92	23 3 41.5	16 17.1	6 18.33	17 21 54.25
Sat.	12	17 20 0.74	23 8 8.4	16 17.2	5 50.07	17 25 50.81
Sun.	13	17 24 25.90	23 12 7.7	16 17.3	5 21.47	17 29 47.37
Mon.	14	17 28 51.36	23 15 39.3	16 17.4	4 52.57	17 33 43.93
Tues.	15	17 33 17.08	23 18 43.1	16 17.5	4 23.40	17 37 40.48
Wed.	16	17 37 43.03	23 21 19.0	16 17.6	3 54.01	17 41 37.04
Thur.	17	17 42 9.16	23 23 26.7	16 17.6	3 24.43	17 45 33.59
Frid.	18	17 46 35.45	23 25 6.3	16 17.7	2 54.70	17 49 30.15
Sat.	19	17 51 1.86	23 26 17.7	16 17.8	2 24.85	17 53 26.71
Sun.	20	17 55 28.35	23 27 0.8	16 17.8	1 54.92	17 57 23.27
Mon.	21	17 59 54.88	23 27 15.7	16 17.9	1 24.95	18 1 19.83
Tues.	22	18 4 21.41	23 27 2.2	16 18.0	0 54.97	18 5 16.38
Wed.	23	18 8 47.92	23 26 20.3	16 18.0	0 25.02	18 9 12.94
Thur.	24	18 13 14.37	23 25 10.2	16 18.1	0 4.87	18 13 9.50
Frid.	25	18 17 40.74	23 23 31.8	16 18.1	0 34.68	18 17 6.06
Sat.	26	18 22 6.99	23 21 25.2	16 18.2	1 4.37	18 21 2.62
Sun.	27	18 26 33.08	23 18 50.4	16 18.2	1 33.91	18 24 59.17
Mon.	28	18 30 58.99	23 15 47.6	16 18.2	2 3.26	18 28 55.73
Tues.	29	18 35 24.68	23 12 16.7	16 18.2	2 32.40	18 32 52.28
Wed.	30	18 39 50.13	23 8 18.0	16 18.2	3 1.29	18 36 48.84
Thur.	31	18 44 15.31	23 3 51.6	16 18.2	3 29.91	18 40 45.40
Frid.	32	18 48 40.19	S. 22 58 57.5	16 18.2	3 58.23	18 44 41.96

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

MEAN TIME.

Day of the Month.	THE SUN'S <i>Apparent</i>		Logarithm of the Radius Vector of the Earth.	THE MOON'S			
	Longitude.	Latitude.		Semi-diameter.		Horizontal Parallax.	
	Noon.	Noon.		Noon.	Midnight.	Noon.	Midnight.
1	249 38 14.9	S. 0° 38'	9.9936738	16 4.8	16 7.8	58 54.7	59 5.8
2	250 39 6.8	0° 28'	9.9936107	16 10.2	16 12.0	59 14.7	59 21.3
3	251 39 59.8	0° 17'	9.9935501	16 13.2	16 13.8	59 25.6	59 27.8
4	252 40 54.1	S. 0° 04'	9.9934919	16 13.9	16 13.5	59 28.1	59 26.5
5	253 41 49.7	N. 0° 10'	9.9934362	16 12.6	16 11.3	59 23.3	59 18.7
6	254 42 46.4	0° 23'	9.9933827	16 9.8	16 7.8	59 12.9	59 6.0
7	255 43 44.4	0° 34'	9.9933312	16 5.7	16 3.3	58 58.1	58 49.4
8	256 44 43.6	0° 44'	9.9932815	16 0.8	15 58.0	58 40.0	58 29.9
9	257 45 44.0	0° 51'	9.9932337	15 55.1	15 51.9	58 19.1	58 7.6
10	258 46 45.5	0° 56'	9.9931876	15 48.6	15 45.1	57 55.5	57 42.7
11	259 47 48.0	0° 58'	9.9931432	15 41.4	15 37.6	57 29.2	57 15.2
12	260 48 51.6	0° 55'	9.9931004	15 33.6	15 29.5	57 0.6	56 45.6
13	261 49 56.0	0° 51'	9.9930592	15 25.3	15 21.1	56 30.2	56 14.6
14	262 51 1.1	0° 44'	9.9930194	15 16.8	15 12.6	55 59.0	55 43.6
15	263 52 6.8	0° 35'	9.9929811	15 8.5	15 4.6	55 28.6	55 14.2
16	264 53 13.1	0° 24'	9.9929444	15 0.9	14 57.5	55 0.6	54 48.3
17	265 54 19.9	0° 13'	9.9929094	14 54.5	14 51.9	54 37.2	54 27.7
18	266 55 26.9	N. 0° 01'	9.9928763	14 49.8	14 48.3	54 20.0	54 14.4
19	267 56 34.2	S. 0° 11'	9.9928450	14 47.3	14 47.0	54 10.9	54 9.7
20	268 57 41.8	0° 22'	9.9928155	14 47.3	14 48.4	54 11.0	54 14.9
21	269 58 49.5	0° 32'	9.9927880	14 50.2	14 52.6	54 21.3	54 30.4
22	270 59 57.2	0° 42'	9.9927627	14 55.8	14 59.7	54 42.0	54 56.3
23	272 1 5.1	0° 49'	9.9927398	15 4.2	15 9.4	55 12.9	55 31.8
24	273 2 13.1	0° 54'	9.9927192	15 15.1	15 21.3	55 52.8	56 15.5
25	274 3 21.1	0° 58'	9.9927011	15 27.9	15 34.8	56 39.7	57 4.9
26	275 4 29.2	0° 58'	9.9926856	15 41.8	15 48.9	57 30.6	57 56.4
27	276 5 37.3	0° 56'	9.9926728	15 55.8	16 2.4	58 21.7	58 45.9
28	277 6 45.5	0° 51'	9.9926629	16 8.5	16 14.1	59 8.4	59 28.7
29	278 7 53.7	0° 42'	9.9926558	16 18.9	16 22.8	59 46.3	60 0.8
30	279 9 2.1	0° 30'	9.9926516	16 25.8	16 27.8	60 11.8	60 19.1
31	280 10 10.5	0° 18'	9.9926504	16 28.8	16 28.8	60 22.8	60 22.8
32	281 11 19.0	S. 0° 04'	9.9926520	16 27.9	16 26.0	60 19.3	60 12.6

MEAN TIME.

Day of the Week.	Day of the Month.	THE MOON'S					
		Longitude.		Latitude.		Age.	Meridian
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Passage.
Tues.	1	88° 30' 57".2	95° 35' 3".8	S. 3° 54' 42".8	S. 3° 29' 23".0	17°.0	13 43.3
Wed.	2	102 40 51.8	109 47 46.1	3 0 40.5	2 29 2.2	18°.0	14 42.1
Thur.	3	116 55 14.7	124 2 49.3	1 54 58.9	1 19 4.5	19°.0	15 40.3
Frid.	4	131 10 5.7	138 16 44.2	S. 0 41 54.9	S. 0 4 7.4	20°.0	16 36.8
Sat.	5	145 22 29.5	152 27 10.0	N. 0 33 41.0	N. 1 10 53.4	21°.0	17 31.1
Sun.	6	159 30 37.3	166 32 45.2	1 46 54.8	2 21 11.9	22°.0	18 23.3
Mon.	7	173 33 29.1	180 32 44.1	2 53 13.7	3 22 32.2	23°.0	19 13.9
Tues.	8	187 30 25.5	194 26 27.4	3 48 42.6	4 11 23.5	24°.0	20 3.8
Wed.	9	201 20 42.1	208 13 0.0	4 30 17.4	4 45 10.6	25°.0	20 53.5
Thur.	10	215 3 9.7	221 50 57.9	4 55 53.4	5 2 20.8	26°.0	21 43.8
Frid.	11	228 36 9.8	235 18 30.1	5 4 31.4	5 2 28.4	27°.0	22 34.8
Sat.	12	241 57 43.5	248 33 35.1	4 56 18.9	4 46 13.6	28°.0	23 26.5
Sun.	13	255 5 51.9	261 34 23.5	4 32 26.5	4 15 14.4	29°.0	6
Mon.	14	267 59 2.5	274 19 45.1	3 54 56.3	3 31 52.9	0.4	0 18.4
Tues.	15	280 36 31.6	286 49 27.2	3 6 26.1	2 38 58.3	1.4	1 9.8
Wed.	16	292 58 41.1	299 4 27.2	2 9 52.0	1 39 29.2	2.4	2 0.1
Thur.	17	305 7 3.5	311 6 52.5	1 8 11.9	N. 0 36 20.6	3.4	2 48.6
Frid.	18	317 4 20.1	322 59 55.9	N. 0 4 15.4	S. 0 27 44.8	4.4	3 35.1
Sat.	19	328 54 12.3	334 47 44.3	S. 0 59 21.8	1 30 18.2	5.4	4 19.9
Sun.	20	340 41 9.5	346 35 6.3	2 0 17.3	2 29 2.8	6.4	5 3.2
Mon.	21	352 30 14.9	358 27 15.9	2 56 18.5	3 21 48.4	7.4	5 45.7
Tues.	22	4 26 49.4	10 29 35.6	3 45 16.6	4 6 26.6	8.4	6 28.2
Wed.	23	16 36 12.4	22 47 15.8	4 25 2.1	4 40 46.1	9.4	7 11.5
Thur.	24	29 3 18.5	35 24 49.2	4 53 22.1	5 2 33.3	10.4	7 56.5
Frid.	25	41 52 10.9	48 25 40.5	5 8 3.9	5 9 39.1	11.4	8 44.1
Sat.	26	55 5 28.0	61 51 34.5	5 7 6.0	5 0 14.8	12.4	9 35.0
Sun.	27	68 43 53.1	75 42 7.1	4 48 59.2	4 33 17.5	13.4	10 29.6
Mon.	28	82 45 51.4	89 54 32.2	4 13 13.7	3 48 58.4	14.4	11 27.4
Tues.	29	97 7 28.1	104 23 51.9	3 20 48.3	2 49 7.7	15.4	12 27.5
Wed.	30	111 42 52.3	119 3 35.5	2 14 26.6	1 37 21.2	16.4	13 28.2
Thur.	31	126 25 7.8	133 46 37.2	S. 0 58 31.7	S. 0 18 41.4	17.4	14 27.6
Frid.	32	141 7 15.3	148 26 18.9	N. 0 21 25.2	N. 1 1 3.8	18.4	15 24.8

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
TUESDAY 1.				THURSDAY 3.			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	5 53 42.93	N.19 32 3.1	23.42	0	7 54 17.97	N.18 54 19.7	39.14
1	5 56 12.19	19 34 19.9	22.17	1	7 56 48.09	18 50 21.1	40.39
2	5 58 41.60	19 36 29.2	20.91	2	7 59 18.10	18 46 15.0	41.64
3	6 1 11.15	19 38 30.8	19.63	3	8 1 48.00	18 42 1.4	42.88
4	6 3 40.83	19 40 24.8	18.36	4	8 4 17.78	18 37 40.4	44.11
5	6 6 10.65	19 42 11.1	17.07	5	8 6 47.43	18 33 12.0	45.34
6	6 8 40.59	19 43 49.7	15.79	6	8 9 16.95	18 28 36.3	46.57
7	6 11 10.65	19 45 20.6	14.50	7	8 11 46.35	18 23 53.2	47.79
8	6 13 40.82	19 46 43.7	13.21	8	8 14 15.61	18 19 2.8	49.00
9	6 16 11.10	19 47 59.1	11.91	9	8 16 44.73	18 14 5.2	50.19
10	6 18 41.49	19 49 6.6	10.61	10	8 19 13.71	18 9 0.5	51.38
11	6 21 11.98	19 50 6.4	9.31	11	8 21 42.54	18 3 48.6	52.57
12	6 23 42.56	19 50 58.3	7.99	12	8 24 11.23	17 58 29.6	53.75
13	6 26 13.22	19 51 42.3	6.68	13	8 26 39.76	17 53 3.6	54.93
14	6 28 43.96	19 52 18.5	5.37	14	8 29 8.13	17 47 30.5	56.09
15	6 31 14.78	19 52 46.8	4.05	15	8 31 36.34	17 41 50.5	57.24
16	6 33 45.68	19 53 7.1	2.73	16	8 34 4.39	17 36 3.6	58.39
17	6 36 16.64	19 53 19.6	1.41	17	8 36 32.28	17 30 9.8	59.52
18	6 38 47.66	19 53 24.1	0.09	18	8 38 59.99	17 24 9.3	60.65
19	6 41 18.73	19 53 20.7	1.23	19	8 41 27.53	17 18 2.0	61.77
20	6 43 49.85	19 53 9.4	2.55	20	8 43 54.90	17 11 48.0	62.89
21	6 46 21.01	19 52 50.1	3.88	21	8 46 22.09	17 5 27.3	63.99
22	6 48 52.21	19 52 22.8	5.21	22	8 48 49.10	16 59 0.1	65.08
23	6 51 23.44	N.19 51 47.6	6.53	23	8 51 15.92	N.16 52 26.4	66.16
WEDNESDAY 2.				FRIDAY 4.			
	<i>h m s</i>	<i>° ' "</i>	<i>"</i>		<i>h m s</i>	<i>° ' "</i>	<i>"</i>
0	6 53 54.69	N.19 51 4.4	7.86	0	8 53 42.57	N.16 45 46.2	67.23
1	6 56 25.96	19 50 13.2	9.19	1	8 56 9.03	16 38 59.6	68.30
2	6 58 57.25	19 49 14.1	10.52	2	8 58 35.29	16 32 6.6	69.36
3	7 1 28.55	19 48 7.0	11.84	3	9 1 1.36	16 25 7.3	70.41
4	7 3 59.84	19 46 52.0	13.17	4	9 3 27.24	16 18 1.7	71.44
5	7 6 31.14	19 45 29.0	14.50	5	9 5 52.93	16 10 50.0	72.46
6	7 9 2.43	19 43 58.0	15.82	6	9 8 18.41	16 3 32.2	73.48
7	7 11 33.70	19 42 19.2	17.13	7	9 10 43.70	15 56 8.3	74.48
8	7 14 4.95	19 40 32.4	18.46	8	9 13 8.79	15 48 38.4	75.47
9	7 16 36.18	19 38 37.7	19.78	9	9 15 33.68	15 41 2.6	76.46
10	7 19 7.38	19 36 35.1	21.09	10	9 17 58.36	15 33 20.9	77.43
11	7 21 38.54	19 34 24.6	22.41	11	9 20 22.84	15 25 33.4	78.39
12	7 24 9.65	19 32 6.2	23.72	12	9 22 47.11	15 17 40.2	79.34
13	7 26 40.72	19 29 40.0	25.03	13	9 25 11.18	15 9 41.3	80.28
14	7 29 11.74	19 27 5.9	26.33	14	9 27 35.03	15 1 36.8	81.21
15	7 31 42.70	19 24 24.1	27.63	15	9 29 58.68	14 53 26.8	82.13
16	7 34 13.60	19 21 34.4	28.93	16	9 32 22.12	14 45 11.3	83.03
17	7 36 44.44	19 18 37.0	30.22	17	9 34 45.35	14 36 50.4	83.93
18	7 39 15.20	19 15 31.8	31.51	18	9 37 8.37	14 28 24.1	84.82
19	7 41 45.88	19 12 18.9	32.79	19	9 39 31.18	14 19 52.5	85.70
20	7 44 16.48	19 8 58.3	34.07	20	9 41 53.78	14 11 15.7	86.56
21	7 46 47.00	19 5 30.1	35.34	21	9 44 16.16	14 2 33.8	87.41
22	7 49 17.42	19 1 54.2	36.61	22	9 46 38.34	13 53 46.8	88.25
23	7 51 47.75	18 58 10.8	37.88	23	9 49 0.30	13 44 54.8	89.08
24	7 54 17.97	N.18 54 19.7	39.14	24	9 51 22.06	N.13 35 57.8	89.90

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
SATURDAY 5.				MONDAY 7.			
0	h m s	N. ° ' "	"	0	h m s	N. ° ' "	"
0	9 51 22.06	N. 13 35 57.8	89.90	0	11 40 56.11	N. 5 12 35.8	115.31
1	9 53 43.60	13 26 56.0	90.70	1	11 43 8.99	5 1 3.2	115.55
2	9 56 4.93	13 17 49.4	91.50	2	11 45 21.74	4 49 29.2	115.78
3	9 58 26.05	13 8 38.0	92.28	3	11 47 34.36	4 37 53.8	116.00
4	10 0 46.96	12 59 22.0	93.05	4	11 49 46.86	4 26 17.2	116.21
5	10 3 7.66	12 50 1.4	93.81	5	11 51 59.24	4 14 39.3	116.41
6	10 5 28.15	12 40 36.3	94.56	6	11 54 11.51	4 3 0.3	116.59
7	10 7 48.42	12 31 6.7	95.30	7	11 56 23.66	3 51 20.2	116.77
8	10 10 8.49	12 21 32.7	96.03	8	11 58 35.70	3 39 39.0	116.94
9	10 12 28.36	12 11 54.4	96.73	9	12 0 47.63	3 27 56.9	117.08
10	10 14 48.01	12 2 51.9	97.43	10	12 2 59.46	3 16 14.0	117.22
11	10 17 7.45	11 52 25.2	98.12	11	12 5 11.19	3 4 30.2	117.36
12	10 19 26.69	11 42 34.4	98.80	12	12 7 22.81	2 52 45.7	117.48
13	10 21 45.73	11 32 39.6	99.47	13	12 9 34.34	2 41 0.5	117.58
14	10 24 4.56	11 22 40.8	100.12	14	12 11 45.77	2 29 14.7	117.68
15	10 26 23.19	11 12 38.2	100.76	15	12 13 57.12	2 17 28.3	117.76
16	10 28 41.63	11 2 31.7	101.39	16	12 16 8.38	2 5 41.5	117.83
17	10 30 59.86	10 52 21.5	102.00	17	12 18 19.55	1 53 54.3	117.90
18	10 33 17.89	10 42 7.7	102.61	18	12 20 30.64	1 42 6.7	117.96
19	10 35 35.73	10 31 50.2	103.21	19	12 22 41.65	1 30 18.8	118.00
20	10 37 53.37	10 21 29.2	103.79	20	12 24 52.59	1 18 30.7	118.03
21	10 40 10.82	10 11 4.7	104.36	21	12 27 3.45	1 6 42.4	118.05
22	10 42 28.08	10 0 36.9	104.92	22	12 29 14.24	0 54 54.1	118.05
23	10 44 45.15	N. 9 50 5.7	105.47	23	12 31 24.96	N. 0 43 5.8	118.05
SUNDAY 6.				TUESDAY 8.			
0	10 47 2.03	N. 9 39 31.3	106.00	0	12 33 35.62	N. 0 31 17.5	118.04
1	10 49 18.72	9 28 53.7	106.52	1	12 35 46.22	0 19 29.3	118.02
2	10 51 35.23	9 18 13.0	107.03	2	12 37 56.75	N. 0 7 41.3	117.98
3	10 53 51.56	9 7 29.3	107.53	3	12 40 7.23	S. 0 4 6.4	117.93
4	10 56 7.71	8 56 42.7	108.02	4	12 42 17.66	0 15 53.9	117.88
5	10 58 23.68	8 45 53.1	108.50	5	12 44 28.04	0 27 41.0	117.81
6	11 0 39.47	8 35 0.7	108.96	6	12 46 38.37	0 39 27.6	117.73
7	11 2 55.09	8 24 5.6	109.41	7	12 48 48.65	0 51 13.7	117.64
8	11 5 10.53	8 13 7.8	109.85	8	12 50 58.89	1 2 59.3	117.55
9	11 7 25.81	8 2 7.4	110.28	9	12 53 9.09	1 14 44.3	117.44
10	11 9 40.91	7 51 4.4	110.70	10	12 55 19.26	1 26 28.6	117.32
11	11 11 55.85	7 39 59.0	111.10	11	12 57 29.39	1 38 12.1	117.18
12	11 14 10.63	7 28 51.2	111.50	12	12 59 39.49	1 49 54.8	117.04
13	11 16 25.25	7 17 41.0	111.88	13	1 1 49.56	2 1 36.6	116.89
14	11 18 39.71	7 6 28.6	112.25	14	13 3 59.61	2 13 17.5	116.73
15	11 20 54.01	6 55 14.0	112.61	15	13 6 9.64	2 24 57.3	116.55
16	11 23 8.16	6 43 57.3	112.96	16	13 8 19.64	2 36 36.1	116.37
17	11 25 22.16	6 32 38.5	113.29	17	13 10 29.63	2 48 13.7	116.17
18	11 27 36.01	6 21 17.8	113.61	18	13 12 39.60	2 59 50.1	115.97
19	11 29 49.71	6 9 55.1	113.93	19	13 14 49.56	3 11 25.3	115.76
20	11 32 3.27	5 58 30.6	114.23	20	13 16 59.51	3 22 59.2	115.53
21	11 34 16.69	5 47 4.4	114.51	21	13 19 9.46	3 34 31.7	115.29
22	11 36 29.96	5 35 36.5	114.79	22	13 21 19.40	3 46 2.7	115.05
23	11 38 43.10	5 24 6.9	115.06	23	13 23 29.34	3 57 32.3	114.80
24	11 40 56.11	N. 5 12 35.8	115.31	24	13 25 39.27	S. 4 9 0.3	114.53

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
WEDNESDAY 9.				FRIDAY 11.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	13 25 39.27	S. 4 9 0.3	114.53	0	15 10 17.61	S. 12 29 17.9	90.32
1	13 27 49.21	4 20 26.6	114.25	1	15 12 29.89	12 38 17.7	89.59
2	13 29 59.16	4 31 51.3	113.97	2	15 14 42.25	12 47 13.0	88.85
3	13 32 9.12	4 43 14.2	113.67	3	15 16 54.69	12 56 3.9	88.11
4	13 34 19.08	4 54 35.3	113.36	4	15 19 7.20	13 4 50.4	87.37
5	13 36 29.06	5 5 54.5	113.03	5	15 21 19.79	13 13 32.4	86.62
6	13 38 39.05	5 17 11.7	112.71	6	15 23 32.45	13 22 9.8	85.85
7	13 40 49.06	5 28 27.0	112.38	7	15 25 45.19	13 30 42.6	85.07
8	13 42 59.09	5 39 40.2	112.03	8	15 27 58.01	13 39 10.7	84.29
9	13 45 9.14	5 50 51.3	111.68	9	15 30 10.90	13 47 34.1	83.51
10	13 47 19.22	6 2 0.3	111.31	10	15 32 23.87	13 55 52.8	82.71
11	13 49 29.32	6 13 7.0	110.93	11	15 34 36.91	14 4 6.6	81.90
12	13 51 39.45	6 24 11.4	110.54	12	15 36 50.03	14 12 15.6	81.09
13	13 53 49.61	6 35 13.5	110.14	13	15 39 3.23	14 20 19.7	80.28
14	13 55 59.80	6 46 13.1	109.73	14	15 41 16.50	14 28 18.9	79.46
15	13 58 10.03	6 57 10.3	109.32	15	15 43 29.84	14 36 13.2	78.63
16	14 0 20.30	7 8 4.9	108.89	16	15 45 43.25	14 44 2.4	77.78
17	14 2 30.60	7 18 57.0	108.46	17	15 47 56.74	14 51 46.5	76.93
18	14 4 40.94	7 29 46.4	108.01	18	15 50 10.30	14 59 25.6	76.08
19	14 6 51.33	7 40 33.1	107.56	19	15 52 23.93	15 6 59.5	75.23
20	14 9 1.76	7 51 17.1	107.09	20	15 54 37.63	15 14 28.3	74.36
21	14 11 12.24	8 1 58.2	106.61	21	15 56 51.39	15 21 51.8	73.48
22	14 13 22.76	8 12 36.4	106.12	22	15 59 5.23	15 29 10.0	72.60
23	14 15 33.34	S. 8 23 11.7	105.63	23	16 1 19.13	S. 15 36 23.0	71.72
THURSDAY 10.				SATURDAY 12.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	14 17 43.96	S. 8 33 44.0	105.13	0	16 3 33.10	S. 15 43 30.6	70.83
1	14 19 54.64	8 44 13.3	104.62	1	16 5 47.14	15 50 32.9	69.93
2	14 22 5.37	8 54 39.4	104.09	2	16 8 1.24	15 57 29.7	69.02
3	14 24 16.15	9 5 2.4	103.56	3	16 10 15.40	16 4 21.1	68.11
4	14 26 27.00	9 15 22.2	103.03	4	16 12 29.63	16 11 7.1	67.20
5	14 28 37.90	9 25 38.7	102.48	5	16 14 43.91	16 17 47.5	66.27
6	14 30 48.86	9 35 51.9	101.92	6	16 16 58.25	16 24 22.3	65.34
7	14 32 59.88	9 46 1.7	101.34	7	16 19 12.65	16 30 51.6	64.41
8	14 35 10.97	9 56 8.0	100.76	8	16 21 27.11	16 37 15.3	63.48
9	14 37 22.12	10 6 10.8	100.17	9	16 23 41.62	16 43 33.3	62.53
10	14 39 33.33	10 16 10.1	99.58	10	16 25 56.18	16 49 45.6	61.58
11	14 41 44.61	10 26 5.8	98.98	11	16 28 10.79	16 55 52.2	60.63
12	14 43 55.95	10 35 57.8	98.36	12	16 30 25.46	17 1 53.1	59.67
13	14 46 7.36	10 45 46.1	97.74	13	16 32 40.17	17 7 48.2	58.70
14	14 48 18.85	10 55 30.7	97.11	14	16 34 54.93	17 13 37.5	57.73
15	14 50 30.40	11 5 11.4	96.47	15	16 37 9.73	17 19 21.0	56.76
16	14 52 42.02	11 14 48.3	95.82	16	16 39 24.57	17 24 58.7	55.78
17	14 54 53.71	11 24 21.3	95.16	17	16 41 39.45	17 30 30.4	54.79
18	14 57 5.48	11 33 50.3	94.49	18	16 43 54.37	17 35 56.2	53.81
19	14 59 17.31	11 43 15.2	93.82	19	16 46 9.32	17 41 16.1	52.82
20	15 1 29.22	11 52 36.1	93.14	20	16 48 24.31	17 46 30.1	51.83
21	15 3 41.21	12 1 52.9	92.45	21	16 50 39.33	17 51 38.0	50.83
22	15 5 53.27	12 11 5.5	91.74	22	16 52 54.38	17 56 40.0	49.82
23	15 8 5.40	12 20 13.8	91.03	23	16 55 9.46	18 1 35.9	48.81
24	15 10 17.61	S. 12 29 17.9	90.32	24	16 57 24.56	S. 18 6 25.7	47.80

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10m.	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10m.
SUNDAY 13.				TUESDAY 15.			
0	16 ^h 57 ^m 24 ^s 56	S. 18° 6' 25".7	47".80	0	18 ^h 45 ^m 6 ^s 38	S. 19° 55' 56".4	2".28
1	16 59 39 68	18 11 9".5	46".79	1	18 47 19 36	19 55 39".6	3".31
2	17 1 54 83	18 15 47".2	45".78	2	18 49 32 23	19 55 16".7	4".33
3	17 4 9 99	18 20 18".8	44".76	3	18 51 44 99	19 54 47".7	5".34
4	17 6 25 17	18 24 44".3	43".73	4	18 53 57 62	19 54 12".6	6".36
5	17 8 40 36	18 29 3".6	42".70	5	18 56 10 13	19 53 31".4	7".37
6	17 10 55 55	18 33 16".7	41".68	6	18 58 22 52	19 52 44".1	8".38
7	17 13 10 76	18 37 23".7	40".65	7	19 0 34 78	19 51 50".8	9".38
8	17 15 25 97	18 41 24".5	39".61	8	19 2 46 92	19 50 51".5	10".39
9	17 17 41 19	18 45 19".0	38".58	9	19 4 58 92	19 49 46".1	11".39
10	17 19 56 40	18 49 7".4	37".54	10	19 7 10 79	19 48 34".8	12".38
11	17 22 11 61	18 52 49".5	36".49	11	19 9 22 53	19 47 17".5	13".38
12	17 24 26 82	18 56 25".3	35".45	12	19 11 34 12	19 45 54".3	14".37
13	17 26 42 02	18 59 54".9	34".41	13	19 13 45 58	19 44 25".1	15".35
14	17 28 57 20	19 3 18".3	33".37	14	19 15 56 89	19 42 50".1	16".33
15	17 31 12 37	19 6 35".3	32".32	15	19 18 8 06	19 41 9".2	17".31
16	17 33 27 53	19 9 46".1	31".27	16	19 20 19 08	19 39 22".4	18".28
17	17 35 42 67	19 12 50".6	30".22	17	19 22 29 95	19 37 29".8	19".25
18	17 37 57 78	19 15 48".7	29".17	18	19 24 40 68	19 35 31".4	20".21
19	17 40 12 87	19 18 40".6	28".12	19	19 26 51 25	19 33 27".3	21".17
20	17 42 27 93	19 21 26".1	27".06	20	19 29 1 66	19 31 17".4	22".13
21	17 44 42 96	19 24 5".3	26".01	21	19 31 11 92	19 29 1".8	23".08
22	17 46 57 96	19 26 38".2	24".95	22	19 33 22 02	19 26 40".5	24".03
23	17 49 12 92	S. 19° 29' 4".7	23".89	23	19 35 31 96	S. 19° 24' 13".5	24".96
MONDAY 14.				WEDNESDAY 16.			
0	17 51 27 84	S. 19° 31' 24".9	22".84	0	19 37 41 74	S. 19° 21' 41".0	25".89
1	17 53 42 72	19 33 38".8	21".78	1	19 39 51 36	19 19 2".8	26".82
2	17 55 57 55	19 35 46".3	20".73	2	19 42 0 81	19 16 19".1	27".75
3	17 58 12 33	19 37 47".5	19".68	3	19 44 10 09	19 13 29".8	28".68
4	18 0 27 06	19 39 42".4	18".62	4	19 46 19 21	19 10 34".9	29".60
5	18 2 41 74	19 41 30".9	17".56	5	19 48 28 15	19 7 34".6	30".50
6	18 4 56 35	19 43 13".1	16".50	6	19 50 36 93	19 4 28".9	31".41
7	18 7 10 91	19 44 48".9	15".45	7	19 52 45 53	19 1 17".7	32".31
8	18 9 25 41	19 46 18".5	14".40	8	19 54 53 96	18 58 1".1	33".21
9	18 11 39 84	19 47 41".7	13".34	9	19 57 2 22	18 54 39".2	34".10
10	18 13 54 20	19 48 58".6	12".29	10	19 59 10 30	18 51 11".9	34".98
11	18 16 8 49	19 50 9".2	11".23	11	20 1 18 20	18 47 39".4	35".87
12	18 18 22 70	19 51 13".4	10".18	12	20 3 25 92	18 44 1".5	36".75
13	18 20 36 84	19 52 11".4	9".14	13	20 5 33 46	18 40 18".4	37".62
14	18 22 50 89	19 53 3".1	8".09	14	20 7 40 83	18 36 30".1	38".48
15	18 25 4 86	19 53 48".5	7".04	15	20 9 48 01	18 32 36".7	39".33
16	18 27 18 75	19 54 27".6	6".00	16	20 11 55 01	18 28 38".1	40".19
17	18 29 32 54	19 55 0".5	4".97	17	20 14 1 83	18 24 34".4	41".04
18	18 31 46 25	19 55 27".2	3".93	18	20 16 8 46	18 20 25".6	41".88
19	18 33 59 86	19 55 47".6	2".88	19	20 18 14 91	18 16 11".8	42".71
20	18 36 13 37	19 56 1".7	1".84	20	20 20 21 18	18 11 53".0	43".54
21	18 38 26 78	19 56 9".7	0".81	21	20 22 27 26	18 7 29".3	44".37
22	18 40 40 09	19 56 11".4	0".22	22	20 24 33 15	18 3 0".6	45".19
23	18 42 53 29	19 56 7".0	1".25	23	20 26 38 86	17 58 27".0	46".01
24	18 45 6 38	S. 19° 55' 56".4	2".28	24	20 28 44 38	S. 17° 53' 48".5	46".82

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10 ^m .
THURSDAY 17.				SATURDAY 19.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	20 28 44.38	S. 17 53 48.5	46.82	0	22 5 35.17	S. 12 47 23.9	78.56
1	20 30 49.71	17 49 5.2	47.62	1	22 7 32.13	12 39 30.9	79.08
2	20 32 54.86	17 44 17.1	48.41	2	22 9 28.95	12 31 34.9	79.59
3	20 34 59.82	17 39 24.3	49.19	3	22 11 25.63	12 23 35.8	80.11
4	20 37 4.59	17 34 26.8	49.98	4	22 13 22.17	12 15 33.6	80.61
5	20 39 9.17	17 29 24.6	50.76	5	22 15 18.57	12 7 28.5	81.09
6	20 41 13.57	17 24 17.7	51.53	6	22 17 14.84	11 59 20.5	81.58
7	20 43 17.78	17 19 6.2	52.30	7	22 19 10.97	11 51 9.5	82.07
8	20 45 21.80	17 13 50.1	53.07	8	22 21 6.97	11 42 55.6	82.55
9	20 47 25.63	17 8 29.4	53.82	9	22 23 2.85	11 34 38.9	83.02
10	20 49 29.27	17 3 4.3	54.56	10	22 24 58.60	11 26 19.4	83.48
11	20 51 32.73	16 57 34.7	55.31	11	22 26 54.23	11 17 57.1	83.95
12	20 53 36.00	16 52 0.6	56.05	12	22 28 49.73	11 9 32.0	84.41
13	20 55 39.08	16 46 22.1	56.77	13	22 30 45.12	11 1 4.2	84.85
14	20 57 41.98	16 40 39.3	57.49	14	22 32 40.39	10 52 33.8	85.30
15	20 59 44.69	16 34 52.2	58.21	15	22 34 35.54	10 44 0.6	85.75
16	21 1 47.21	16 29 0.7	58.93	16	22 36 30.58	10 35 24.8	86.18
17	21 3 49.55	16 23 5.0	59.63	17	22 38 25.52	10 26 46.5	86.59
18	21 5 51.70	16 17 5.1	60.33	18	22 40 20.34	10 18 5.7	87.01
19	21 7 53.67	16 11 1.0	61.02	19	22 42 15.06	10 9 22.3	87.44
20	21 9 55.46	16 4 52.8	61.71	20	22 44 9.68	10 0 36.4	87.86
21	21 11 57.06	15 58 40.4	62.40	21	22 46 4.20	9 51 48.0	88.26
22	21 13 58.48	15 52 24.0	63.08	22	22 47 58.62	9 42 57.3	88.66
23	21 15 59.72	S. 15 46 3.5	63.75	23	22 49 52.94	S. 9 34 4.1	89.06
FRIDAY 18.				SUNDAY 20.			
	^h ^m ^s	[°] ['] ["]	["]		^h ^m ^s	[°] ['] ["]	["]
0	21 18 0.78	S. 15 39 39.0	64.41	0	22 51 47.18	S. 9 25 8.6	89.44
1	21 20 1.66	15 33 10.6	65.07	1	22 53 41.32	9 16 10.8	89.83
2	21 22 2.36	15 26 38.2	65.73	2	22 55 35.38	9 7 10.6	90.21
3	21 24 2.89	15 20 1.9	66.37	3	22 57 29.35	8 58 8.2	90.59
4	21 26 3.24	15 13 21.8	67.01	4	22 59 23.24	8 49 3.5	90.96
5	21 28 3.41	15 6 37.8	67.64	5	23 1 17.05	8 39 56.7	91.32
6	21 30 3.41	14 59 50.1	68.27	6	23 3 10.78	8 30 47.7	91.68
7	21 32 3.24	14 52 58.6	68.89	7	23 5 4.44	8 21 36.5	92.03
8	21 34 2.89	14 46 3.4	69.51	8	23 6 58.03	8 12 23.3	92.38
9	21 36 2.37	14 39 4.5	70.12	9	23 8 51.55	8 3 7.9	92.73
10	21 38 1.69	14 32 2.0	70.72	10	23 10 45.01	7 53 50.5	93.07
11	21 40 0.84	14 24 55.9	71.32	11	23 12 38.40	7 44 31.1	93.40
12	21 41 59.82	14 17 46.2	71.91	12	23 14 31.73	7 35 9.7	93.73
13	21 43 58.64	14 10 33.0	72.50	13	23 16 25.00	7 25 46.4	94.05
14	21 45 57.29	14 3 16.2	73.08	14	23 18 18.22	7 16 21.1	94.37
15	21 47 55.78	13 55 56.0	73.65	15	23 20 11.39	7 6 53.9	94.68
16	21 49 54.11	13 48 32.4	74.22	16	23 22 4.51	6 57 24.9	94.99
17	21 51 52.28	13 41 5.4	74.78	17	23 23 57.58	6 47 54.0	95.30
18	21 53 50.30	13 33 35.0	75.35	18	23 25 50.62	6 38 21.3	95.59
19	21 55 48.16	13 26 1.2	75.90	19	23 27 43.61	6 28 46.9	95.88
20	21 57 45.86	13 18 24.2	76.44	20	23 29 36.57	6 19 10.8	96.17
21	21 59 43.41	13 10 43.9	76.98	21	23 31 29.49	6 9 32.9	96.45
22	22 1 40.81	13 3 0.4	77.52	22	23 33 22.38	5 59 53.4	96.73
23	22 3 38.06	12 55 13.7	78.04	23	23 35 15.24	5 50 12.2	97.00
24	22 5 35.17	S. 12 47 23.9	78.56	24	23 37 8.08	S. 5 40 29.4	97.27

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10m.	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10m.
MONDAY 21.				WEDNESDAY 23.			
0	^h 23 ^m 37 ^s 8.08	S. 5 40 29.4	97.27	0	^h 1 7 ^m 58.69	N. 2 26 58.0	103.71
1	23 39 0.90	5 30 45.0	97.53	1	1 9 54.32	2 37 20.2	103.70
2	23 40 53.70	5 20 59.1	97.78	2	1 11 50.09	2 47 42.4	103.68
3	23 42 46.49	5 11 11.7	98.03	3	1 13 46.01	2 58 4.4	103.66
4	23 44 39.26	5 1 22.7	98.28	4	1 15 42.08	3 8 26.3	103.63
5	23 46 32.03	4 51 32.3	98.52	5	1 17 38.30	3 18 48.0	103.60
6	23 48 24.79	4 41 40.5	98.75	6	1 19 34.67	3 29 9.5	103.56
7	23 50 17.55	4 31 47.3	98.98	7	1 21 31.20	3 39 30.7	103.51
8	23 52 10.30	4 21 52.7	99.21	8	1 23 27.90	3 49 51.6	103.46
9	23 54 3.06	4 11 56.8	99.43	9	1 25 24.76	4 0 12.2	103.39
10	23 55 55.83	4 1 59.6	99.64	10	1 27 21.79	4 10 32.3	103.32
11	23 57 48.61	3 52 1.1	99.85	11	1 29 19.00	4 20 52.0	103.24
12	23 59 41.40	3 42 1.4	100.05	12	1 31 16.38	4 31 11.2	103.16
13	0 1 34.21	3 32 0.5	100.25	13	1 33 13.94	4 41 29.9	103.08
14	0 3 27.03	3 21 58.4	100.44	14	1 35 11.68	4 51 48.1	102.98
15	0 5 19.88	3 11 55.2	100.63	15	1 37 9.62	5 2 5.6	102.87
16	0 7 12.76	3 1 50.9	100.81	16	1 39 7.74	5 12 22.5	102.76
17	0 9 5.67	2 51 45.5	100.99	17	1 41 6.05	5 22 38.7	102.64
18	0 10 58.61	2 41 39.0	101.17	18	1 43 4.57	5 32 54.2	102.51
19	0 12 51.58	2 31 31.5	101.33	19	1 45 3.28	5 43 8.8	102.38
20	0 14 44.59	2 21 23.0	101.49	20	1 47 2.20	5 53 22.7	102.24
21	0 16 37.65	2 11 13.6	101.64	21	1 49 1.32	6 3 35.7	102.08
22	0 18 30.76	2 1 3.3	101.80	22	1 51 0.65	6 13 47.7	101.92
23	0 20 23.91	S. 1 50 52.0	101.95	23	1 53 0.20	N. 6 23 58.8	101.76
TUESDAY 22.				THURSDAY 24.			
0	0 22 17.11	S. 1 40 39.9	102.08	0	1 54 59.97	N. 6 34 8.8	101.58
1	0 24 10.37	1 30 27.0	102.21	1	1 56 59.95	6 44 17.8	101.40
2	0 26 3.69	1 20 13.3	102.34	2	1 59 0.16	6 54 25.6	101.21
3	0 27 57.08	1 9 58.9	102.47	3	2 1 0.60	7 4 32.3	101.02
4	0 29 50.53	0 59 43.7	102.59	4	2 3 1.26	7 14 37.8	100.81
5	0 31 44.05	0 49 27.8	102.70	5	2 5 2.16	7 24 42.0	100.59
6	0 33 37.64	0 39 11.3	102.80	6	2 7 3.30	7 34 44.9	100.37
7	0 35 31.31	0 28 54.2	102.90	7	2 9 4.67	7 44 46.5	100.14
8	0 37 25.06	0 18 36.5	103.00	8	2 11 6.29	7 54 46.6	99.90
9	0 39 18.89	S. 0 8 18.2	103.10	9	2 13 8.15	8 4 45.3	99.66
10	0 41 12.81	N. 0 2 0.7	103.18	10	2 15 10.27	8 14 42.5	99.39
11	0 43 6.82	0 12 20.0	103.25	11	2 17 12.63	8 24 38.0	99.13
12	0 45 0.92	0 22 39.7	103.32	12	2 19 15.25	8 34 32.0	98.86
13	0 46 55.12	0 32 59.8	103.38	13	2 21 18.13	8 44 24.3	98.57
14	0 48 49.42	0 43 20.3	103.44	14	2 23 21.27	8 54 14.8	98.27
15	0 50 43.82	0 53 41.1	103.50	15	2 25 24.67	9 4 3.5	97.97
16	0 52 38.33	1 4 2.3	103.55	16	2 27 28.34	9 13 50.4	97.66
17	0 54 32.95	1 14 23.7	103.58	17	2 29 32.28	9 23 35.4	97.34
18	0 56 27.69	1 24 45.3	103.62	18	2 31 36.49	9 33 18.5	97.01
19	0 58 22.54	1 35 7.2	103.66	19	2 33 40.98	9 42 59.5	96.67
20	1 0 17.51	1 45 29.2	103.68	20	2 35 45.75	9 52 38.5	96.32
21	1 2 12.61	1 55 51.3	103.69	21	2 37 50.80	10 2 15.4	95.96
22	1 4 7.84	2 6 13.5	103.70	22	2 39 56.13	10 11 50.0	95.58
23	1 6 3.20	2 16 35.7	103.71	23	2 42 1.76	10 21 22.4	95.21
24	1 7 58.69	N. 2 26 58.0	103.71	24	2 44 7.67	N. 10 30 52.6	94.83

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
FRIDAY 25.				SUNDAY 27.			
0	h m s	N. 10 30 52.6	94.83	0	h m s	N. 17 0 42.8	63.18
1	2 44 7.67	10 40 20.4	94.43	1	4 31 9.65	17 6 59.0	62.23
2	2 46 13.87	10 49 45.7	94.01	2	4 33 31.72	17 13 9.5	61.27
3	2 48 20.37	10 59 8.5	93.59	3	4 35 54.13	17 19 14.2	60.30
4	2 50 27.16	11 8 28.8	93.17	4	4 38 16.87	17 25 13.1	59.31
5	2 52 34.25	11 17 46.5	92.73	5	4 40 39.94	17 31 6.0	58.31
6	2 54 41.65	11 27 1.6	92.28	6	4 43 3.34	17 36 52.8	57.30
7	2 56 49.35	11 36 13.9	91.82	7	4 45 27.07	17 42 33.6	56.29
8	2 58 57.36	11 45 23.4	91.35	8	4 47 51.12	17 48 8.3	55.26
9	3 1 5.67	11 54 30.1	90.88	9	4 50 15.50	17 53 36.7	54.21
10	3 3 14.30	12 3 33.9	90.38	10	4 52 40.20	17 58 58.8	53.16
11	3 5 23.24	12 12 34.7	89.88	11	4 55 5.22	18 4 14.6	52.10
12	3 7 32.50	12 21 32.4	89.36	12	4 57 30.56	18 9 24.0	51.02
13	3 9 42.08	12 30 27.0	88.83	13	4 59 56.20	18 14 26.9	49.93
14	3 11 51.98	12 39 18.4	88.30	14	5 2 22.16	18 19 23.2	48.83
15	3 14 2.19	12 48 6.6	87.76	15	5 4 48.43	18 24 12.8	47.72
16	3 16 12.73	12 56 51.5	87.20	16	5 7 15.00	18 28 55.8	46.61
17	3 18 23.60	13 5 33.0	86.62	17	5 9 41.88	18 33 32.1	45.48
18	3 20 34.80	13 14 11.0	86.04	18	5 12 9.05	18 38 1.5	44.33
19	3 22 46.32	13 22 45.5	85.46	19	5 14 36.52	18 42 24.0	43.17
20	3 24 58.17	13 31 16.5	84.86	20	5 17 4.28	18 46 39.5	42.01
21	3 27 10.36	13 39 43.8	84.24	21	5 19 32.33	18 50 48.1	40.84
22	3 29 22.87	13 48 7.4	83.62	22	5 22 0.66	18 54 49.6	39.66
23	3 31 35.72	13 56 27.2	82.98	23	5 24 29.28	18 58 44.0	38.47
24	3 33 48.91			24	5 26 58.17		
SATURDAY 26.				MONDAY 28.			
0	3 36 2.43	N. 14 4 43.2	82.33	0	5 29 27.33	N. 19 2 31.2	37.26
1	3 38 16.29	14 12 55.2	81.67	1	5 31 56.76	19 6 11.1	36.04
2	3 40 30.49	14 21 3.2	80.99	2	5 34 26.46	19 9 43.7	34.82
3	3 42 45.03	14 29 7.1	80.31	3	5 36 56.41	19 13 9.0	33.59
4	3 44 59.91	14 37 6.9	79.62	4	5 39 26.62	19 16 26.8	32.35
5	3 47 15.14	14 45 2.5	78.91	5	5 41 57.08	19 19 37.2	31.11
6	3 49 30.70	14 52 53.8	78.19	6	5 44 27.78	19 22 40.1	29.85
7	3 51 46.61	15 0 40.8	77.46	7	5 46 58.72	19 25 35.4	28.58
8	3 54 2.86	15 8 23.3	76.71	8	5 49 29.90	19 28 23.0	27.30
9	3 56 19.46	15 16 1.3	75.96	9	5 52 1.31	19 31 3.0	26.02
10	3 58 36.40	15 23 34.8	75.19	10	5 54 32.94	19 33 35.3	24.73
11	4 0 53.68	15 31 3.6	74.41	11	5 57 4.79	19 35 59.8	23.43
12	4 3 11.31	15 38 27.7	73.62	12	5 59 36.85	19 38 16.5	22.13
13	4 5 29.29	15 45 47.0	72.82	13	6 2 9.12	19 40 25.4	20.82
14	4 7 47.61	15 53 1.5	72.00	14	6 4 41.60	19 42 26.4	19.50
15	4 10 6.27	16 0 11.0	71.17	15	6 7 14.27	19 44 19.4	18.18
16	4 12 25.28	16 7 15.5	70.33	16	6 9 47.13	19 46 4.5	16.84
17	4 14 44.63	16 14 15.0	69.48	17	6 12 20.18	19 47 41.5	15.50
18	4 17 4.33	16 21 9.3	68.61	18	6 14 53.40	19 49 10.5	14.16
19	4 19 24.36	16 27 58.3	67.73	19	6 17 26.80	19 50 31.4	12.81
20	4 21 44.74	16 34 42.1	66.85	20	6 20 0.37	19 51 44.2	11.45
21	4 24 5.46	16 41 20.5	65.95	21	6 22 34.10	19 52 48.8	10.09
22	4 26 26.52	16 47 53.5	65.03	22	6 25 7.98	19 53 45.3	8.72
23	4 28 47.92	16 54 20.9	64.11	23	6 27 42.01	19 54 33.5	7.34
24	4 31 9.65	N. 17 0 42.8	63.18	24	6 30 16.19	N. 19 55 13.4	5.97

MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".	Hour.	Right Ascension.	Declination.	Diff. Dec. for 10".
TUESDAY 29.				THURSDAY 31.			
0	^h 6 ^m 30 ^s 16.19	N. 19 55 13.4	5.97	0	^h 8 ^m 34 ^s 12.33	N. 17 44 6.8	59.44
1	6 32 50.50	19 55 45.1	4.59	1	8 36 45.38	17 38 6.4	60.67
2	6 35 24.93	19 56 8.5	3.21	2	8 39 18.26	17 31 58.7	61.89
3	6 37 59.49	19 56 23.6	1.82	3	8 41 50.97	17 25 43.7	63.10
4	6 40 34.17	19 56 30.3	0.43	4	8 44 23.50	17 19 21.5	64.30
5	6 43 8.95	19 56 28.7	0.97	5	8 46 55.84	17 12 52.1	65.49
6	6 45 43.83	19 56 18.7	2.36	6	8 49 28.00	17 6 15.6	66.68
7	6 48 18.81	19 56 0.4	3.76	7	8 51 59.97	16 59 32.0	67.85
8	6 50 53.88	19 55 33.6	5.17	8	8 54 31.74	16 52 41.4	69.01
9	6 53 29.03	19 54 58.4	6.57	9	8 57 3.31	16 45 43.9	70.15
10	6 56 4.26	19 54 14.8	7.97	10	8 59 34.68	16 38 39.6	71.28
11	6 58 39.55	19 53 22.8	9.37	11	9 2 5.85	16 31 28.5	72.41
12	7 1 14.91	19 52 22.4	10.78	12	9 4 36.80	16 24 10.6	73.53
13	7 3 50.32	19 51 13.5	12.18	13	9 7 7.54	16 16 46.1	74.63
14	7 6 25.78	19 49 56.2	13.59	14	9 9 38.07	16 9 15.1	75.72
15	7 9 1.28	19 48 30.4	15.00	15	9 12 8.37	16 1 37.5	76.80
16	7 11 36.81	19 46 56.2	16.41	16	9 14 38.46	15 53 53.5	77.86
17	7 14 12.37	19 45 13.5	17.81	17	9 17 8.32	15 46 3.2	78.91
18	7 16 47.95	19 43 22.5	19.21	18	9 19 37.95	15 38 6.6	79.95
19	7 19 23.54	19 41 23.0	20.62	19	9 22 7.36	15 30 3.8	80.98
20	7 21 59.14	19 39 15.0	22.03	20	9 24 36.53	15 21 54.9	81.99
21	7 24 34.74	19 36 58.7	23.43	21	9 27 5.47	15 13 39.9	82.99
22	7 27 10.33	19 34 34.0	24.82	22	9 29 34.18	15 5 19.0	83.98
23	7 29 45.91	N. 19 32 0.9	26.22	23	9 32 2.64	N. 14 56 52.1	84.97
WEDNESDAY 30.				FRIDAY JAN. 1, 1869.			
0	7 32 21.47	N. 19 29 19.4	27.61	0	9 34 30.87	N. 14 48 19.4	85.95
1	7 34 57.00	19 26 29.6	29.00				
2	7 37 32.50	19 23 31.4	30.38				
3	7 40 7.96	19 20 25.0	31.77				
4	7 42 43.37	19 17 10.2	33.15				
5	7 45 18.72	19 13 47.2	34.52				
6	7 47 54.02	19 10 16.0	35.88				
7	7 50 29.25	19 6 36.6	37.25				
8	7 53 4.41	19 2 49.0	38.62				
9	7 55 39.49	18 58 53.2	39.97				
10	7 58 14.49	18 54 49.4	41.31				
11	8 0 49.39	18 50 37.5	42.66				
12	8 3 24.20	18 46 17.5	44.00				
13	8 5 58.91	18 41 49.5	45.32				
14	8 8 33.51	18 37 13.6	46.64				
15	8 11 7.99	18 32 29.8	47.96				
16	8 13 42.36	18 27 38.1	49.27				
17	8 16 16.60	18 22 38.5	50.58				
18	8 18 50.71	18 17 31.2	51.86				
19	8 21 24.68	18 12 16.2	53.14				
20	8 23 58.51	18 6 53.5	54.42				
21	8 26 32.20	18 1 23.1	55.69				
22	8 29 5.74	17 55 45.2	56.95				
23	8 31 39.12	17 49 59.7	58.20				
24	8 34 12.33	N. 17 44 6.8	59.44				

PHASES OF THE MOON.

Dec. 6	(Last Quarter -	^h 9 ^m 33.6
13	● New Moon -	13 33.2
21	) First Quarter -	16 28.0
29	○ Full Moon -	1 47.6

Dec. 3	(Perigee - - -	^h 20
19	(Apogee - - -	12
31	(Perigee - - -	6

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
1	Jupiter W.	84 7 29	2313	85 53 7	2309	87 38 54	2302	89 24 51	2297
	α Arietis W.	54 16 38	2333	55 57 5	2317	57 37 55	2303	59 19 4	2290
	Aldebaran W.	20 32 45	2312	22 18 27	2305	24 4 20	2299	25 50 21	2292
	Regulus E.	59 36 19	2310	57 50 34	2303	56 4 38	2297	54 18 34	2291
	Mars E.	60 19 18	2415	58 36 5	2408	56 52 42	2401	55 9 9	2396
2	Jupiter W.	98 16 23	2275	100 3 0	2272	101 49 41	2268	103 36 27	2266
	α Arietis W.	67 48 56	2439	69 31 35	2432	71 14 24	2426	72 57 22	2420
	Aldebaran W.	34 42 30	2269	36 29 15	2265	38 16 6	2262	40 3 1	2260
	Regulus E.	45 26 17	2268	43 39 31	2264	41 52 39	2262	40 5 43	2259
	Mars E.	46 29 30	2371	44 45 14	2368	43 0 53	2365	41 16 28	2362
	Venus E.	110 41 3	2660	109 3 30	2657	107 25 52	2654	105 48 10	2651
3	α Arietis W.	81 33 56	2402	83 17 28	2400	85 1 3	2398	86 44 40	2398
	Aldebaran W.	48 58 27	2251	50 45 39	2250	52 32 52	2250	54 20 5	2249
	Regulus E.	31 10 14	2251	29 23 2	2250	27 35 49	2249	25 48 35	2250
	Spica E.	85 1 19	2279	83 14 49	2279	81 28 18	2279	79 41 48	2279
	Venus E.	97 38 50	2641	96 0 51	2641	94 22 52	2641	92 44 52	2641
	SUN E.	134 42 51	2600	133 3 56	2598	131 24 58	2596	129 45 57	2595
4	Aldebaran W.	63 16 5	2254	65 3 13	2255	66 50 18	2257	68 37 21	2259
	Pollux W.	21 3 9	2676	22 40 21	2619	24 18 50	2574	25 58 20	2538
	Spica E.	70 49 30	2286	69 3 10	2288	67 16 53	2291	65 30 40	2294
	Venus E.	84 35 3	2645	82 57 9	2648	81 19 19	2649	79 41 31	2652
	SUN E.	121 30 39	2594	119 51 36	2596	118 12 35	2596	116 33 35	2598
5	Aldebaran W.	77 31 45	2272	79 18 25	2275	81 5 1	2278	82 51 32	2282
	Pollux W.	34 25 39	2438	36 8 20	2427	37 51 17	2419	39 34 84	2412
	Spica E.	56 40 50	2313	54 55 11	2319	53 9 39	2324	51 24 15	2330
	Venus E.	71 33 26	2667	69 56 2	2671	68 18 43	2675	66 41 29	2679
	SUN E.	108 19 17	2610	106 40 36	2613	105 1 59	2617	103 23 27	2620
6	Aldebaran W.	91 42 46	2301	93 28 44	2305	95 14 36	2310	97 0 21	2314
	Pollux W.	48 11 49	2396	49 55 29	2396	51 39 9	2396	53 22 50	2396
	Spica E.	42 39 34	2366	40 55 10	2375	39 11 0	2385	37 27 3	2396
	Venus E.	58 36 45	2701	57 0 7	2707	55 23 36	2711	53 47 11	2716
	SUN E.	95 12 0	2640	93 33 59	2645	91 56 5	2649	90 18 16	2654
7	Pollux W.	62 0 49	2405	63 44 16	2408	65 27 39	2412	67 10 57	2415
	Regulus W.	25 39 15	2337	27 24 20	2342	29 9 18	2348	30 54 8	2352
	Mars W.	23 7 45	2438	24 50 26	2441	26 33 2	2445	28 15 33	2449
	Venus E.	45 46 56	2746	44 11 17	2751	42 35 45	2758	41 0 22	2764
	SUN E.	82 10 51	2679	80 33 43	2684	78 56 42	2689	77 19 48	2695
8	Pollux W.	75 46 11	2435	77 28 56	2440	79 11 34	2445	80 54 5	2449
	Regulus W.	39 36 31	2378	41 20 38	2384	43 4 36	2389	44 48 26	2394
	Mars W.	36 46 38	2472	38 28 31	2476	40 10 18	2482	41 51 57	2486
	Venus E.	33 5 39	2800	31 31 11	2808	29 56 54	2817	28 22 48	2825
	SUN E.	69 17 11	2724	67 41 3	2731	66 5 4	2736	64 29 12	2743
9	Pollux W.	89 24 50	2477	91 6 36	2483	92 48 13	2490	94 29 40	2496
	Regulus W.	53 25 36	2423	55 8 38	2430	56 51 30	2436	58 34 14	2442
	Mars W.	50 18 25	2514	51 59 19	2519	53 40 6	2525	55 20 44	2531
	SUN E.	56 32 5	2776	54 57 6	2784	53 22 17	2791	51 47 38	2798

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^b .	P.L. of diff.	XVIII ^b .	P.L. of diff.	XXI ^b .	P.L. of diff.
1	Jupiter W.	91 10 55	2292	92 57 7	2287	94 43 26	2283	96 29 51	2278
	α Arietis W.	61 0 31	2478	62 42 16	2467	64 24 16	2457	66 6 30	2448
	Aldebaran W.	27 36 32	2287	29 22 51	2282	31 9 17	2277	32 55 50	2272
	Regulus E.	52 32 21	2286	50 46 1	2281	48 59 33	2276	47 12 58	2272
	Mars E.	53 25 28	2390	51 41 39	2385	49 57 43	2380	48 13 39	2376
2	Jupiter W.	105 23 17	2264	107 10 10	2262	108 57 6	2261	110 44 3	2260
	α Arietis W.	74 40 28	2415	76 23 42	2410	78 7 2	2407	79 50 26	2403
	Aldebaran W.	41 50 0	2257	43 37 3	2255	45 24 9	2253	47 11 17	2252
	Regulus E.	38 18 43	2257	36 31 40	2255	34 44 34	2253	32 57 25	2252
	Mars E.	39 31 59	2359	37 47 26	2357	36 2 50	2356	34 18 12	2355
	Venus E.	104 10 24	2648	102 32 34	2646	100 54 41	2644	99 16 46	2643
3	α Arietis W.	88 28 18	2398	90 11 55	2398	91 55 32	2400	93 39 7	2401
	Aldebaran W.	56 7 19	2250	57 54 32	2251	59 41 44	2251	61 28 56	2253
	Regulus E.	24 1 22	2250	22 14 9	2250	20 26 56	2252	18 39 46	2252
	Spica E.	77 55 17	2280	76 8 48	2281	74 22 20	2282	72 35 54	2283
	Venus E.	91 6 52	2641	89 28 53	2642	87 50 55	2643	86 12 58	2644
	Sun E.	128 6 55	2593	126 27 51	2593	124 48 47	2593	123 9 43	2593
4	Aldebaran W.	70 24 21	2261	72 11 18	2264	73 58 11	2266	75 45 0	2269
	Pollux W.	27 38 41	2509	29 19 42	2485	31 1 16	2466	32 43 17	2451
	Spica E.	63 44 31	2297	61 58 27	2301	60 12 29	2305	58 26 37	2309
	Venus E.	78 3 46	2655	76 26 5	2658	74 48 28	2661	73 10 55	2663
	Sun E.	114 54 37	2601	113 15 43	2602	111 36 51	2604	109 58 2	2607
5	Aldebaran W.	84 37 58	2285	86 24 19	2289	88 10 34	2293	89 56 43	2298
	Pollux W.	41 17 41	2407	43 1 6	2403	44 44 36	2400	46 28 11	2398
	Spica E.	49 38 59	2337	47 53 53	2343	46 8 56	2350	44 24 9	2358
	Venus E.	65 4 21	2683	63 27 18	2687	61 50 21	2692	60 13 30	2696
	Sun E.	101 44 59	2624	100 6 36	2628	98 28 19	2632	96 50 7	2635
6	Aldebaran W.	98 46 0	2319	100 31 32	2323	102 16 58	2328	104 2 17	2333
	Pollux W.	55 6 30	2397	56 50 9	2399	58 33 45	2401	60 17 19	2403
	Spica E.	35 43 22	2407	33 59 58	2420	32 16 52	2435	30 34 7	2453
	Venus E.	52 10 53	2722	50 34 43	2728	48 58 40	2733	47 22 44	2739
	Sun E.	88 40 34	2658	87 2 58	2663	85 25 29	2669	83 48 7	2673
7	Pollux W.	68 54 11	2419	70 37 19	2422	72 20 22	2426	74 3 19	2430
	Regulus W.	32 38 52	2357	34 23 28	2363	36 7 56	2367	37 52 18	2373
	Mars W.	29 57 58	2453	31 40 17	2457	33 22 31	2462	35 4 37	2466
	Venus E.	39 25 7	2771	37 50 1	2778	36 15 4	2785	34 40 17	2792
	Sun E.	75 43 1	2701	74 6 22	2707	72 29 51	2712	70 53 27	2718
8	Pollux W.	82 36 30	2455	84 18 46	2460	86 0 56	2466	87 42 57	2472
	Regulus W.	46 32 9	2400	48 15 43	2406	49 59 9	2412	51 42 27	2418
	Mars W.	43 33 30	2492	45 14 55	2497	46 56 12	2502	48 37 22	2507
	Venus E.	26 48 53	2835	25 15 11	2846	23 41 43	2857	22 8 29	2869
	Sun E.	62 53 29	2750	61 17 55	2756	59 42 29	2763	58 7 13	2769
9	Pollux W.	96 10 59	2502	97 52 9	2510	99 33 8	2516	101 13 59	2524
	Regulus W.	60 16 49	2448	61 59 15	2455	63 41 32	2461	65 23 40	2468
	Mars W.	57 1 14	2537	58 41 36	2543	60 21 50	2549	62 1 55	2556
	Sun E.	50 13 8	2806	48 38 48	2814	47 4 39	2822	45 30 40	2831

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
10	Regulus W.	67 5 38	2475	68 47 27	2482	70 29 6	2488	72 10 36	2495
	Mars W.	63 41 51	2562	65 21 38	2569	67 1 16	2576	68 40 44	2582
	Sun E.	43 56 53	2839	42 23 16	2848	40 49 51	2858	39 16 38	2867
11	Regulus W.	80 35 33	2533	82 16 1	2540	83 56 18	2548	85 36 24	2556
	Mars W.	76 55 45	2618	78 34 15	2626	80 12 35	2634	81 50 44	2641
	Spica W.	27 30 25	2663	29 7 55	2658	30 45 31	2655	32 23 12	2654
	Sun E.	31 33 47	2922	30 1 56	2935	28 30 22	2949	26 59 5	2963
16	Sun W.	28 10 3	3342	29 33 26	3348	30 56 42	3355	32 19 50	3362
	Fomalhaut E.	44 43 29	3503	43 23 8	3546	42 3 35	3594	40 44 54	3645
	α Pegasi E.	59 50 5	3382	58 27 28	3408	57 5 20	3434	55 43 42	3461
	Jupiter E.	71 54 39	2940	70 23 11	2950	68 51 55	2959	67 20 51	2969
	α Arietis E.	102 15 47	3071	100 47 2	3079	99 18 27	3087	97 50 1	3095
17	Sun W.	39 13 33	3396	40 35 54	3403	41 58 7	3409	43 20 13	3416
	Fomalhaut E.	34 26 52	3986	33 14 59	4079	32 4 37	4182	30 55 54	4299
	α Pegasi E.	49 3 47	3624	47 45 39	3664	46 28 14	3707	45 11 34	3752
	Jupiter E.	59 48 22	3013	58 18 25	3021	56 48 38	3028	55 19 0	3036
	α Arietis E.	90 30 19	3135	89 2 52	3143	87 35 34	3151	86 8 26	3158
18	Sun W.	50 8 53	3446	51 30 18	3451	52 51 37	3455	54 12 51	3460
	α Pegasi E.	39 1 18	4042	37 50 20	4117	36 40 35	4201	35 32 10	4294
	Jupiter E.	47 53 6	3070	46 24 20	3075	44 55 40	3082	43 27 8	3087
	α Arietis E.	78 55 3	3195	77 28 48	3203	76 2 43	3210	74 36 46	3217
	Aldebaran E.	110 47 43	3039	109 18 18	3044	107 49 0	3049	106 19 48	3054
19	Sun W.	60 57 55	3476	62 18 46	3478	63 39 35	3479	65 0 22	3480
	α Aquilæ W.	41 2 40	4524	42 6 11	4443	43 10 54	4371	44 16 41	4304
	Jupiter E.	36 5 53	3108	34 37 53	3111	33 9 57	3114	31 42 4	3117
	α Arietis E.	67 29 0	3250	66 3 50	3257	64 38 48	3263	63 13 53	3270
	Aldebaran E.	98 55 5	3071	97 26 20	3073	95 57 37	3075	94 28 57	3076
20	Sun W.	71 44 9	3479	73 4 57	3477	74 25 47	3475	75 46 39	3472
	α Aquilæ W.	49 59 34	4043	51 10 31	4003	52 22 8	3964	53 34 23	3928
	α Arietis E.	56 11 10	3301	54 47 0	3308	53 22 58	3316	51 59 5	3324
	Aldebaran E.	87 5 48	3076	85 37 9	3074	84 8 28	3073	82 39 45	3070
21	Sun W.	82 32 1	3450	83 53 21	3444	85 14 48	3437	86 36 23	3430
	α Aquilæ W.	59 44 5	3776	60 59 32	3750	62 15 26	3725	63 31 47	3702
	Fomalhaut W.	26 59 18	4726	27 59 56	4561	29 2 55	4418	30 8 0	4292
	α Arietis E.	45 2 4	3371	43 39 15	3384	42 16 40	3398	40 54 21	3414
	Aldebaran E.	75 15 13	3051	73 46 3	3045	72 16 46	3039	70 47 22	3034
22	Sun W.	93 26 26	3388	94 48 56	3377	96 11 39	3366	97 34 34	3356
	α Aquilæ W.	69 59 33	3593	71 18 15	3574	72 37 18	3554	73 56 43	3535
	Fomalhaut W.	35 59 3	3839	37 13 25	3772	38 28 56	3712	39 45 30	3656
	α Arietis E.	34 8 13	3535	32 48 28	3572	31 29 23	3616	30 11 6	3667
	Aldebaran E.	63 18 14	2995	61 47 55	2985	60 17 23	2976	58 46 40	2966
	Pollux E.	107 15 47	3052	105 46 39	3042	104 17 19	3031	102 47 45	3021
23	Sun W.	104 32 28	3294	105 56 47	3280	107 21 22	3265	108 46 14	3251
	Fomalhaut W.	46 22 2	3431	47 43 44	3393	49 6 9	3357	50 29 15	3323
	α Pegasi W.	34 12 21	4166	35 21 19	4061	36 31 59	3965	37 44 14	3878

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
		° ' "		° ' "		° ' "		° ' "	
10	Regulus W.	73 51 56	2502	75 33 6	2510	77 14 5	2517	78 54 54	2525
	Mars W.	70 20 4	2589	71 59 14	2596	73 38 14	2604	75 17 4	2610
	SUN E.	37 43 37	2877	36 10 49	2887	34 38 14	2898	33 5 53	2910
11	Regulus W.	87 16 19	2565	88 56 2	2573	90 35 34	2581	92 14 55	2589
	Mars W.	83 28 43	2650	85 6 30	2658	86 44 7	2666	88 21 33	2675
	Spica W.	34 0 54	2654	35 38 36	2655	37 16 16	2658	38 53 52	2663
	SUN E.	25 28 6	2979	23 57 27	2997	22 27 11	3017	20 57 20	3040
16	SUN W.	33 42 50	3368	35 5 43	3375	36 28 28	3382	37 51 5	3390
	Fomalhaut E.	39 27 8	3701	38 10 22	3762	36 54 40	3829	35 40 8	3904
	α Pegasi E.	54 22 34	3490	53 1 59	3522	51 41 59	3554	50 22 34	3588
	Jupiter E.	65 49 59	2977	64 19 18	2986	62 48 48	2996	61 18 30	3004
	α Arietis E.	96 21 45	3103	94 53 39	3111	93 25 43	3119	91 57 56	3127
17	SUN W.	44 42 11	3423	46 4 2	3429	47 25 45	3434	48 47 23	3441
	Fomalhaut E.	29 49 0	4431	28 44 7	4582	27 41 27	4756	26 41 14	4959
	α Pegasi E.	43 55 42	3800	42 40 40	3854	41 26 33	3911	40 13 24	3973
	Jupiter E.	53 49 32	3043	52 20 13	3050	50 51 2	3057	49 22 0	3064
	α Arietis E.	84 41 27	3167	83 14 38	3174	81 47 57	3181	80 21 25	3189
18	SUN W.	55 34 0	3464	56 55 4	3467	58 16 5	3471	59 37 2	3474
	α Pegasi E.	34 25 12	4398	33 19 49	4512	32 16 8	4643	31 14 20	4789
	Jupiter E.	41 58 42	3092	40 30 22	3096	39 2 7	3100	37 33 58	3104
	α Arietis E.	73 10 57	3224	71 45 16	3231	70 19 43	3237	68 54 18	3243
	Aldebaran E.	104 50 42	3058	103 21 41	3062	101 52 45	3065	100 23 53	3069
19	SUN W.	66 21 8	3481	67 41 53	3481	69 2 38	3481	70 23 23	3480
	α Aquilæ W.	45 23 30	4244	46 31 15	4186	47 39 54	4136	48 49 21	4088
	Jupiter E.	30 14 15	3119	28 46 28	3121	27 18 44	3124	25 51 3	3125
	α Arietis E.	61 49 6	3276	60 24 26	3282	58 59 53	3288	57 35 28	3294
	Aldebaran E.	93 0 18	3077	91 31 40	3078	90 3 3	3078	88 34 26	3077
20	SUN W.	77 7 35	3469	78 28 34	3464	79 49 38	3460	81 10 47	3455
	α Aquilæ W.	54 47 15	3895	56 0 40	3863	57 14 38	3832	58 29 7	3804
	α Arietis E.	50 35 21	3331	49 11 45	3340	47 48 20	3350	46 25 6	3360
	Aldebaran E.	81 10 59	3067	79 42 9	3064	78 13 15	3060	76 44 17	3056
21	SUN W.	87 58 5	3423	89 19 56	3415	90 41 56	3406	92 4 6	3397
	α Aquilæ W.	64 48 32	3678	66 5 43	3656	67 23 17	3633	68 41 14	3614
	Fomalhaut W.	31 15 0	4179	32 23 46	4080	33 34 7	3991	34 45 55	3912
	α Arietis E.	39 32 20	3432	38 10 40	3453	36 49 23	3477	35 28 33	3504
	Aldebaran E.	69 17 51	3027	67 48 11	3019	66 18 22	3011	64 48 23	3003
22	SUN W.	98 57 41	3344	100 21 1	3332	101 44 36	3320	103 8 24	3307
	α Aquilæ W.	75 16 28	3516	76 36 34	3499	77 56 59	3481	79 17 44	3463
	Fomalhaut W.	41 3 4	3605	42 21 33	3557	43 40 54	3512	45 1 5	3471
	α Arietis E.	28 53 44	3727	27 37 26	3799	26 22 23	3886	25 8 49	3991
	Aldebaran E.	57 15 44	2955	55 44 35	2944	54 13 12	2932	52 41 34	2921
	Pollux E.	101 17 58	3010	99 47 58	2998	98 17 43	2986	96 47 13	2974
23	SUN W.	110 11 23	3236	111 36 50	3221	113 2 34	3205	114 28 37	3189
	Fomalhaut W.	51 53 0	3290	53 17 23	3259	54 42 23	3229	56 7 58	3199
	α Pegasi W.	38 57 56	3798	40 13 0	3725	41 29 21	3658	42 46 53	3595

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P.L. of diff.	III ^h .	P.L. of diff.	VI ^h .	P.L. of diff.	IX ^h .	P.L. of diff.
		° ' "		° ' "		° ' "		° ' "	
23	Aldebaran E.	51 9 42	2909	49 37 34	2896	48 5 10	2883	46 32 29	2870
	Pollux E.	95 16 28	2962	93 45 27	2949	92 14 10	2936	90 42 37	2922
24	SUN W.	115 54 59	3173	117 21 41	3157	118 48 42	3139	120 16 4	3123
	Fomalhaut W.	57 34 9	3176	59 0 53	3143	60 28 11	3116	61 56 1	3090
	α Pegasi W.	44 5 33	3536	45 25 17	3481	46 46 2	3430	48 7 44	3382
	Jupiter W.	23 53 26	2848	25 26 51	2831	27 0 38	2813	28 34 49	2796
	Aldebaran E.	38 44 38	2797	37 10 6	2782	35 35 15	2766	34 0 3	2750
	Pollux E.	83 0 25	2851	81 27 3	2836	79 53 22	2821	78 19 21	2805
25	SUN W.	127 38 8	3034	129 7 39	3017	130 37 31	2998	132 7 46	2980
	Fomalhaut W.	69 22 57	2968	70 53 50	2945	72 25 12	2922	73 57 3	2901
	α Pegasi W.	55 9 10	3176	56 35 48	3140	58 3 9	3106	59 31 11	3073
	Jupiter W.	36 31 28	2707	38 7 58	2689	39 44 52	2672	41 22 10	2654
	Pollux E.	70 24 15	2728	68 48 12	2712	67 11 48	2696	65 35 3	2681
	Mars E.	112 28 16	2710	110 51 49	2693	109 14 59	2675	107 37 46	2657
26	α Pegasi W.	67 1 1	2927	68 32 46	2900	70 5 5	2874	71 37 57	2850
	Jupiter W.	49 34 39	2565	51 14 22	2548	52 54 29	2530	54 35 0	2513
	Pollux E.	57 26 9	2605	55 47 21	2591	54 8 14	2578	52 28 49	2564
	Regulus E.	92 56 48	2530	91 16 16	2512	89 35 20	2495	87 53 59	2478
	Mars E.	99 25 33	2567	97 45 53	2550	96 5 49	2532	94 25 20	2514
27	α Pegasi W.	79 29 46	2741	81 5 31	2722	82 41 42	2704	84 18 17	2686
	Jupiter W.	63 3 34	2429	64 46 28	2413	66 29 44	2397	68 13 23	2381
	α Arietis W.	35 57 9	2845	37 30 38	2796	39 5 11	2750	40 40 44	2708
	Pollux E.	44 7 23	2509	42 26 22	2500	40 45 9	2493	39 3 46	2488
	Regulus E.	79 21 19	2394	77 37 36	2379	75 53 31	2363	74 9 3	2347
	Mars E.	85 56 46	2428	84 13 51	2412	82 30 33	2395	80 46 51	2379
28	Jupiter W.	76 57 5	2309	78 42 51	2296	80 28 57	2283	82 15 21	2271
	α Arietis W.	48 51 12	2542	50 31 27	2515	52 12 19	2491	53 53 45	2468
	Pollux E.	30 36 4	2498	28 54 48	2511	27 13 50	2531	25 33 20	2558
	Regulus E.	65 21 15	2276	63 34 40	2262	61 47 44	2249	60 0 30	2237
	Mars E.	72 2 47	2304	70 16 54	2291	68 30 41	2278	66 44 9	2265
29	Jupiter W.	91 11 41	2217	92 59 44	2208	94 48 0	2199	96 36 29	2191
	α Arietis W.	62 28 24	2374	64 12 36	2359	65 57 10	2345	67 42 4	2332
	Aldebaran W.	29 9 8	2183	30 58 1	2175	32 47 7	2166	34 36 26	2157
	Regulus E.	51 0 0	2182	49 11 6	2174	47 21 59	2165	45 32 39	2157
	Mars E.	57 47 1	2209	55 58 46	2200	54 10 18	2190	52 21 36	2182
30	α Arietis W.	76 30 41	2285	78 17 3	2278	80 3 35	2272	81 50 16	2268
	Aldebaran W.	43 45 51	2126	45 36 11	2121	47 26 38	2117	49 17 11	2114
	Regulus E.	36 23 13	2126	34 32 53	2121	32 42 26	2117	30 51 53	2114
	Mars E.	43 15 15	2149	41 25 31	2145	39 35 41	2141	37 45 44	2138
	Spica E.	90 12 51	2155	88 23 16	2151	86 33 34	2147	84 43 47	2143
31	α Arietis W.	90 44 55	2257	92 31 57	2258	94 18 58	2260	96 5 56	2262
	Aldebaran W.	58 30 55	2106	60 21 45	2107	62 12 34	2107	64 3 22	2109
	Pollux W.	16 49 9	2768	18 24 19	2652	20 2 4	2563	21 41 50	2497
	Mars E.	28 35 9	2133	26 45 0	2134	24 54 53	2136	23 4 49	2140
	Spica E.	75 33 58	2138	73 43 57	2140	71 53 58	2141	70 4 1	2143

MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of diff.	XV ^h .	P.L. of diff.	XVIII ^h .	P.L. of diff.	XXI ^h .	P.L. of diff.
23	Aldebaran E.	44 59 31	2856	43 26 16	2842	41 52 42	2827	40 18 49	2813
	Pollux E.	89 10 46	2909	87 38 38	2895	86 6 12	2880	84 33 28	2866
24	SUN W.	121 43 46	3105	123 11 50	3088	124 40 14	3070	126 9 1	3053
	Fomalhaut W.	63 24 23	3065	64 53 16	3040	66 22 39	3015	67 52 34	2992
	α Pegasi W.	49 30 21	3337	50 53 50	3293	52 18 10	3252	53 43 17	3213
	Jupiter W.	30 9 22	2778	31 44 19	2760	33 19 39	2743	34 55 22	2725
	Aldebaran E.	32 24 30	2735	30 48 36	2719	29 12 21	2702	27 35 44	2685
	Pollux E.	76 45 0	2791	75 10 20	2775	73 35 19	2759	71 59 57	2744
25	SUN W.	133 38 24	2962	135 9 24	2944	136 40 47	2927	138 12 32	2909
	Fomalhaut W.	75 29 21	2879	77 2 7	2858	78 35 20	2838	80 8 59	2819
	α Pegasi W.	60 59 54	3041	62 29 15	3011	63 59 14	2982	65 29 50	2954
	Jupiter W.	42 59 51	2636	44 37 57	2618	46 16 27	2601	47 55 21	2583
	Pollux E.	63 57 58	2665	62 20 31	2650	60 42 44	2635	59 4 36	2621
	Mars E.	106 0 8	2639	104 22 6	2621	102 43 40	2603	101 4 49	2585
26	α Pegasi W.	73 11 20	2827	74 45 13	2804	76 19 36	2782	77 54 27	2761
	Jupiter W.	56 15 55	2496	57 57 14	2479	59 38 57	2462	61 21 4	2445
	Pollux E.	50 49 5	2551	49 9 3	2540	47 28 45	2528	45 48 11	2518
	Regulus E.	86 12 15	2460	84 30 6	2444	82 47 34	2427	81 4 38	2411
	Mars E.	92 44 26	2496	91 3 7	2479	89 21 24	2462	87 39 17	2445
27	α Pegasi W.	85 55 16	2669	87 32 37	2654	89 10 19	2640	90 48 20	2626
	Jupiter W.	69 57 25	2366	71 41 48	2351	73 26 33	2337	75 11 39	2323
	α Arietis W.	42 17 13	2669	43 54 34	2634	45 32 43	2601	47 11 36	2570
	Pollux E.	37 22 16	2485	35 40 42	2484	33 59 6	2485	32 17 31	2490
	Regulus E.	72 24 12	2333	70 39 0	2318	68 53 26	2303	67 7 31	2289
	Mars E.	79 2 46	2364	77 18 19	2348	75 33 30	2333	73 48 19	2319
28	Jupiter W.	84 2 3	2259	85 49 3	2247	87 36 20	2237	89 23 53	2227
	α Arietis W.	55 35 44	2446	57 18 13	2426	59 1 11	2407	60 44 35	2390
	Pollux E.	23 53 27	2595	22 14 25	2645	20 36 31	2713	19 0 9	2806
	Regulus E.	58 12 58	2225	56 25 8	2214	54 37 1	2203	52 48 38	2193
	Mars E.	64 57 19	2252	63 10 9	2241	61 22 43	2230	59 35 0	2219
29	Jupiter W.	98 25 10	2184	100 14 2	2177	102 3 5	2171	103 52 16	2165
	α Arietis W.	69 27 17	2321	71 12 46	2310	72 58 31	2300	74 44 30	2292
	Aldebaran W.	36 25 58	2150	38 15 41	2143	40 5 35	2136	41 55 39	2131
	Regulus E.	43 43 7	2149	41 53 23	2143	40 3 29	2136	38 13 25	2131
	Mars E.	50 32 41	2174	48 43 35	2167	46 54 18	2161	45 4 51	2155
30	α Arietis W.	83 37 3	2263	85 23 56	2260	87 10 54	2259	88 57 54	2258
	Aldebaran W.	51 7 49	2111	52 58 32	2109	54 49 18	2107	56 40 6	2107
	Regulus E.	29 1 15	2112	27 10 34	2109	25 19 49	2108	23 29 2	2106
	Mars E.	35 55 43	2135	34 5 37	2133	32 15 29	2132	30 25 19	2132
	Spica E.	82 53 54	2141	81 3 58	2140	79 13 59	2139	77 23 59	2138
31	α Arietis W.	97 52 51	2266	99 39 40	2270	101 26 24	2276	103 12 59	2281
	Aldebaran W.	65 54 8	2111	67 44 51	2113	69 35 30	2116	71 26 5	2120
	Pollux W.	23 23 8	2444	25 5 40	2404	26 49 9	2373	28 33 23	2347
	Mars E.	21 14 50	2145	19 24 59	2151	17 35 17	2159	15 45 47	2169
	Spica E.	68 14 7	2146	66 24 18	2149	64 34 34	2154	62 44 57	2159

Day of the Month.	AIRY's Day Numbers— For correcting the Places of the Fixed Stars.					Mean Time of Transit of the First Point of Aries.
	At Mean Midnight,					
	Logarithms of				Value of L	
	E	F	G	H		
1	1°49650	1°64572	0°27435	1°51236	33°216	^h 7 ^m 16 ^s 19.64
2	1°49214	1°64689	0°27509	1°51245	33°361	7 12 23.73
3	1°48772	1°64801	0°27583	1°51253	33°515	7 8 27.82
4	1°48321	1°64906	0°27657	1°51260	33°681	7 4 31.91
5	1°47862	1°65005	0°27731	1°51266	33°858	7 0 36.00
6	1°47397	1°65098	0°27806	1°51272	34°042	6 56 40.09
7	1°46924	1°65184	0°27881	1°51277	34°236	6 52 44.17
8	1°46443	1°65264	0°27956	1°51281	34°437	6 48 48.26
9	1°45956	1°65339	0°28032	1°51284	34°649	6 44 52.35
10	1°45461	1°65407	0°28107	1°51287	34°871	6 40 56.44
11	1°44958	1°65469	0°28183	1°51289	35°101	6 37 0.53
12	1°44448	1°65525	0°28259	1°51290	35°341	6 33 4.62
13	1°43930	1°65574	0°28335	1°51289	35°592	6 29 8.70
14	1°43404	1°65617	0°28412	1°51288	35°852	6 25 12.79
15	1°42872	1°65655	0°28488	1°51286	36°120	6 21 16.88
16	1°42331	1°65686	0°28564	1°51283	36°397	6 17 20.97
17	1°41782	1°65711	0°28640	1°51279	36°684	6 13 25.06
18	1°41226	1°65730	0°28716	1°51274	36°979	6 9 29.15
19	1°40662	1°65742	0°28792	1°51268	37°284	6 5 33.23
20	1°40090	1°65748	0°28868	1°51261	37°599	6 1 37.32
21	1°39512	1°65749	0°28944	1°51254	37°921	5 57 41.41
22	1°38925	1°65743	0°29019	1°51246	38°251	5 53 45.50
23	1°38330	1°65730	0°29094	1°51236	38°590	5 49 49.59
24	1°37728	1°65712	0°29169	1°51226	38°937	5 45 53.68
25	1°37117	1°65687	0°29244	1°51215	39°293	5 41 57.77
26	1°36498	1°65656	0°29319	1°51202	39°657	5 38 1.86
27	1°35873	1°65620	0°29394	1°51189	40°028	5 34 5.95
28	1°35239	1°65577	0°29468	1°51175	40°408	5 30 10.03
29	1°34596	1°65526	0°29542	1°51160	40°796	5 26 14.12
30	1°33947	1°65471	0°29615	1°51144	41°190	5 22 18.21
31	1°33290	1°65409	0°29688	1°51127	41°593	5 18 22.30
32	1°32624	1°65341	0°29761	1°51109	42°004	5 14 26.39

Day of the Month.	BESSEL's Day Numbers— For correcting the Places of the Fixed Stars.				Days elapsed of the Julian Period at Mean Noon.	Mean Equinoctial Time, adding 0 ^h 26 ^m 68 ^s . Days.	From Mean Noon of January 1.	
	At Mean Midnight,						Day of the Year.	Fraction of the Year.*
	Logarithms of							
	A	B	C	D				
1	+0.8040	+1.2840	+9.8330	+0.8771	2403668	254	335	.9172
2	0.7821	1.2867	9.8351	0.8775	2403669	255	336	.9199
3	0.7589	1.2892	9.8371	0.8778	2403670	256	337	.9227
4	+0.7342	+1.2916	+9.8391	+0.8782	2403671	257	338	.9254
5	0.7079	1.2939	9.8412	0.8784	2403672	258	339	.9282
6	0.6797	1.2960	9.8432	0.8787	2403673	259	340	.9309
7	+0.6494	+1.2980	+9.8453	+0.8789	2403674	260	341	.9336
8	0.6166	1.2998	9.8473	0.8791	2403675	261	342	.9364
9	0.5810	1.3014	9.8493	0.8792	2403676	262	343	.9391
10	+0.5421	+1.3030	+9.8514	+0.8793	2403677	263	344	.9418
11	0.4992	1.3044	9.8534	0.8794	2403678	264	345	.9446
12	0.4514	1.3056	9.8554	0.8794	2403679	265	346	.9473
13	+0.3976	+1.3067	+9.8575	+0.8794	2403680	266	347	.9501
14	0.3359	1.3077	9.8595	0.8794	2403681	267	348	.9528
15	0.2638	1.3085	9.8615	0.8793	2403682	268	349	.9555
16	+0.1771	+1.3092	+9.8635	+0.8791	2403683	269	350	.9583
17	0.0685	1.3097	9.8655	0.8790	2403684	270	351	.9610
18	9.9232	1.3101	9.8675	0.8788	2403685	271	352	.9637
19	+9.7030	+1.3104	+9.8695	+0.8785	2403686	272	353	.9665
20	+9.2338	1.3106	9.8715	0.8782	2403687	273	354	.9692
21	-9.2101	1.3106	9.8735	0.8779	2403688	274	355	.9720
22	-9.6952	+1.3104	+9.8755	+0.8775	2403689	275	356	.9747
23	9.9186	1.3102	9.8774	0.8771	2403690	276	357	.9774
24	0.0652	1.3098	9.8794	0.8767	2403691	277	358	.9802
25	-0.1746	+1.3092	+9.8813	+0.8762	2403692	278	359	.9829
26	0.2617	1.3085	9.8832	0.8757	2403693	279	360	.9856
27	0.3342	1.3077	9.8851	0.8751	2403694	280	361	.9884
28	-0.3961	+1.3067	+9.8870	+0.8745	2403695	281	362	.9911
29	0.4502	1.3056	9.8889	0.8738	2403696	282	363	.9939
30	0.4982	1.3044	9.8908	0.8731	2403697	283	364	.9966
31	0.5413	1.3030	9.8927	0.8724	2403698	284	365	.9993
32	-0.5803	+1.3015	+9.8945	+0.8716	2403699	285	366	1.0021

* Add .0012 if Fraction be required for the time t , see page 329.

Mean Noon.	Apparent Obliquity.	The Sun's		Precession in Longitude.	Equation of Equinoxes.		Mean Longitude of C's Ascending Node.
		Horizontal Parallax.	Aberration.		In Long.	In R. A. (in time)	
1868.	23 27						
Jan. 1	14 12	8 72	20 79	0 00	6 17	0 38	158 3 3
11	14 26	8 72	20 79	1 38	5 95	0 36	157 31 5
21	14 44	8 71	20 77	2 75	5 83	0 35	156 59 7
31	14 63	8 70	20 75	4 13	5 79	0 35	156 28 0
Feb. 10	14 84	8 69	20 71	5 50	5 95	0 36	155 56 2
20	15 04	8 67	20 67	6 88	6 26	0 38	155 24 4
Mar. 1	15 21	8 65	20 62	8 26	6 71	0 41	154 52 6
11	15 31	8 63	20 57	9 63	7 25	0 44	154 20 9
21	15 38	8 60	20 51	11 01	7 83	0 48	153 49 1
31	15 36	8 58	20 45	12 38	8 39	0 51	153 17 3
Apr. 10	15 28	8 55	20 39	13 76	8 91	0 54	152 45 5
20	15 15	8 53	20 33	15 13	9 32	0 57	152 13 8
30	15 01	8 51	20 28	16 51	9 61	0 59	151 42 0
May 10	14 87	8 49	20 23	17 89	9 75	0 60	151 10 2
20	14 72	8 47	20 19	19 26	9 74	0 60	150 38 5
30	14 62	8 46	20 16	20 64	9 62	0 59	150 6 7
June 9	14 55	8 45	20 13	22 01	9 40	0 58	149 34 9
19	14 54	8 44	20 11	23 39	9 14	0 56	149 3 2
29	14 59	8 44	20 11	24 77	8 86	0 54	148 31 4
July 9	14 71	8 44	20 11	26 14	8 61	0 53	147 59 6
19	14 87	8 44	20 12	27 52	8 44	0 52	147 27 8
29	15 06	8 45	20 14	28 89	8 39	0 51	146 56 0
Aug. 8	15 27	8 46	20 17	30 27	8 47	0 52	146 24 2
18	15 49	8 48	20 21	31 65	8 70	0 53	145 52 5
28	15 67	8 50	20 25	33 02	9 04	0 55	145 20 7
Sept. 7	15 83	8 52	20 30	34 40	9 51	0 58	144 48 9
17	15 93	8 54	20 36	35 77	10 04	0 61	144 17 2
27	15 96	8 57	20 42	37 15	10 60	0 65	143 45 4
Oct. 7	15 96	8 59	20 47	38 53	11 14	0 68	143 13 6
17	15 88	8 61	20 53	39 90	11 61	0 71	142 41 9
27	15 76	8 64	20 59	41 28	11 96	0 73	142 10 1
Nov. 6	15 63	8 66	20 64	42 65	12 18	0 74	141 38 3
16	15 48	8 68	20 69	44 03	12 24	0 75	141 6 6
26	15 34	8 70	20 73	45 40	12 15	0 74	140 34 8
Dec. 6	15 27	8 71	20 76	46 78	11 93	0 73	140 3 0
16	15 23	8 72	20 78	48 16	11 63	0 71	139 31 2
26	15 28	8 72	20 79	49 53	11 30	0 69	138 59 4
36	15 39	8 72	20 79	50 91	11 01	0 67	138 27 7
Mean Obliquity, Jan. 1, 1868 - - - - - 23 27 23 26 Precession of the Equinoxes for the Year 1868 - - 50 2565 for 1 Day - - - - - 1376							Daily Motion. - 3 18

Month and Day at Mean Noon.	X, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.	Y, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.	Z, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.
Jan. 1	+0° 1778744	+285	-0° 8871297	+216	-0° 3848893	-367
2	° 1950500	275	° 8840801	218	° 3835668	365
3	° 2121634	265	° 8807559	220	° 3821249	363
4	° 2292093	255	° 8771583	221	° 3805647	361
5	° 2461826	246	° 8732882	222	° 3788856	359
6	° 2630782	237	° 8691470	223	° 3770890	356
7	° 2798908	228	° 8647368	224	° 3751755	353
8	° 2966160	219	° 8600590	225	° 3731458	350
9	° 3132488	211	° 8551153	226	° 3710008	347
10	° 3297845	203	° 8499077	227	° 3687411	343
11	° 3462182	195	° 8444371	226	° 3663674	339
12	° 3625451	187	° 8387050	226	° 3638799	335
13	° 3787607	179	° 8327125	226	° 3612797	331
14	° 3948603	172	° 8264621	225	° 3585673	328
15	° 4108387	165	° 8199546	224	° 3557434	324
16	° 4266911	158	° 8131923	223	° 3528089	321
17	° 4424126	151	° 8061763	222	° 3497645	317
18	° 4579981	144	° 7989090	220	° 3466112	313
19	° 4734429	138	° 7913922	218	° 3433496	310
20	° 4887412	132	° 7836283	216	° 3399811	306
21	° 5038882	126	° 7756193	214	° 3365066	302
22	° 5188791	120	° 7673681	211	° 3329271	299
23	° 5337087	114	° 7588778	208	° 3292440	295
24	° 5483719	108	° 7501509	204	° 3254582	291
25	° 5628645	102	° 7411902	200	° 3215713	287
26	° 5771814	96	° 7319986	197	° 3175843	283
27	° 5913184	90	° 7225797	193	° 3134987	279
28	° 6052708	84	° 7129367	189	° 3093157	275
29	° 6190337	78	° 7030721	184	° 3050366	270
30	° 6326037	72	° 6929903	179	° 3006633	265
31	° 6459767	67	° 6826944	174	° 2961966	262
Feb. 1	° 6591485	61	° 6721882	169	° 2916388	259
2	° 6721153	55	° 6614751	164	° 2869910	255
3	° 6848738	49	° 6505588	158	° 2822548	251
4	° 6974195	43	° 6394426	152	° 2774319	246
5	° 7097500	38	° 6281310	146	° 2725240	241
6	° 7218617	33	° 6166272	140	° 2675325	237
7	° 7337517	28	° 6049355	134	° 2624594	233
8	° 7454162	23	° 5930587	128	° 2573062	229
9	° 7568525	18	° 5810002	122	° 2520740	225
10	° 7680569	13	° 5687645	115	° 2467647	222
11	° 7790270	9	° 5563537	108	° 2413797	218
12	° 7897592	5	° 5437709	101	° 2359198	214
13	° 8002508	+ 1	° 5310206	94	° 2303875	210
14	° 8104974	- 3	° 5181072	87	° 2247844	207
15	° 8204970	6	° 5050330	80	° 2191119	205
16	+0° 8302460	- 9	-0° 4918027	+ 73	-0° 2133716	-201

Month and Day at Mean Noon.	X, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.	Y, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.	Z, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.
Feb. 16	+0° 8302460	— 9	—0° 4918027	+ 73	—0° 2133716	—201
17	·8397412	12	·4784197	66	·2075654	198
18	·8489786	14	·4648888	59	·2016955	194
19	·8579564	16	·4512141	53	·1957627	190
20	·8666710	18	·4374003	47	·1897699	186
21	·8751204	20	·4234512	40	·1837184	181
22	·8833010	21	·4093722	35	·1776108	176
23	·8912108	22	·3951670	30	·1714485	171
24	·8988470	23	·3808410	25	·1652336	166
25	·9062082	23	·3663986	20	·1589682	162
26	·9132914	24	·3518447	15	·1526544	157
27	·9200950	24	·3371837	10	·1462941	152
28	·9266172	23	·3224210	+ 5	·1398896	147
29	·9328562	23	·3075606	0	·1334424	143
March 1	·9388106	22	·2926078	— 6	·1269550	138
2	·9444796	22	·2775675	12	·1204206	133
3	·9498620	21	·2624448	18	·1138680	128
4	·9549559	20	·2472442	24	·1072727	124
5	·9597612	19	·2319703	31	·1006455	120
6	·9642769	18	·2166278	38	·0939883	115
7	·9685024	17	·2012215	45	·0873035	110
8	·9724364	16	·1857555	52	·0805925	106
9	·9760784	15	·1702339	59	·0738576	102
10	·9794284	14	·1546610	66	·0671005	98
11	·9824842	12	·1390412	73	·0603230	94
12	·9852462	11	·1233784	81	·0535271	89
13	·9877130	10	·1076775	89	·0467148	85
14	·9898835	9	·0919425	97	·0398879	82
15	·9917570	8	·0761786	105	·0330485	79
16	·9933332	7	·0603900	114	·0261986	77
17	·9946122	5	·0445822	122	·0193404	74
18	·9955922	3	·0287595	130	·0124759	71
19	·9962732	— 1	—0° 0129270	138	—0° 0056073	68
20	·9966557	0	+0° 0029103	146	+0° 0012635	64
21	·9967395	+ 2	·0187476	154	·0081340	59
22	·9965240	5	·0345799	160	·0150025	55
23	·9960100	8	·0504020	166	·0218665	50
24	·9951970	11	·0662096	172	·0287244	45
25	·9940862	15	·0819968	178	·0355734	40
26	·9926775	19	·0977596	183	·0424118	35
27	·9909730	23	·1134924	188	·0492375	30
28	·9889725	27	·1291905	193	·0560481	25
29	·9866775	31	·1448489	198	·0628416	20
30	·9840892	35	·1604628	202	·0696162	15
31	·9812092	40	·1760279	206	·0763696	9
April 1	·9780396	43	·1915389	211	·0830998	5
2	+0° 9745807	+ 47	+0° 2069914	—215	+0° 0898048	— 1

Month and Day at Mean Noon.	X, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.	Y, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.	Z, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.
April 2	+0° 9745807	+ 47	+0° 2069914	-215	+0° 0898048	- 1
3	° 9708349	51	° 2223814	219	° 0964827	+ 5
4	° 9668042	54	° 2377044	223	° 1031316	11
5	° 9624898	57	° 2529565	227	° 1097498	18
6	° 9578934	61	° 2681340	231	° 1163352	23
7	° 9530169	65	° 2832322	235	° 1228865	28
8	° 9478610	70	° 2982485	239	° 1294019	33
9	° 9424280	75	° 3131780	243	° 1358794	38
10	° 9367192	80	° 3280167	248	° 1423175	42
11	° 9307360	85	° 3427608	253	° 1487143	47
12	° 9244802	91	° 3574056	258	° 1550679	51
13	° 9179536	97	° 3719471	263	° 1613766	56
14	° 9111580	103	° 3863815	269	° 1676388	59
15	° 9040954	109	° 4007038	275	° 1738522	62
16	° 8967672	116	° 4149100	281	° 1800152	66
17	° 8891766	123	° 4289958	287	° 1861261	70
18	° 8813252	130	° 4429573	292	° 1921830	74
19	° 8732158	137	° 4567900	297	° 1981837	78
20	° 8648502	144	° 4704900	302	° 2041272	82
21	° 8562312	152	° 4840528	307	° 2100110	86
22	° 8473616	160	° 4974743	312	° 2158338	90
23	° 8382440	168	° 5107508	317	° 2215932	95
24	° 8288818	176	° 5238781	322	° 2272884	100
25	° 8192780	184	° 5368520	326	° 2329171	105
26	° 8094357	192	° 5496692	330	° 2384779	110
27	° 7993587	200	° 5623248	334	° 2439692	115
28	° 7890505	208	° 5748162	338	° 2493892	120
29	° 7785150	216	° 5871396	342	° 2547366	125
30	° 7677554	224	° 5992918	345	° 2600097	130
May 1	° 7567755	232	° 6112695	347	° 2652072	135
2	° 7455792	240	° 6230698	349	° 2703276	140
3	° 7341692	248	° 6346902	351	° 2753700	146
4	° 7225493	256	° 6461281	353	° 2803329	152
5	° 7107230	265	° 6577301	355	° 2852152	158
6	° 6986938	273	° 6684437	355	° 2900154	163
7	° 6864646	281	° 6793166	355	° 2947327	168
8	° 6740385	290	° 6899954	356	° 2993656	173
9	° 6614195	299	° 7004778	357	° 3039132	179
10	° 6486109	307	° 7107602	358	° 3083740	185
11	° 6356157	315	° 7208401	361	° 3127470	190
12	° 6224386	324	° 7307152	362	° 3170308	195
13	° 6090821	332	° 7403816	361	° 3212243	200
14	° 5955508	340	° 7498377	360	° 3253263	205
15	° 5818478	349	° 7590794	359	° 3293354	209
16	° 5679771	358	° 7681046	358	° 3332505	213
17	° 5539428	367	° 7769113	357	° 3370709	218
18	+0° 5397487	+ 376	+0° 7854957	-356	+0° 3407947	+222

Month and Day at Mean Noon.	X, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.	Y, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.	Z, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.
May 18	+0° 5397487	+376	+0° 7854957	-356	+0° 3407947	+222
19	5253990	385	7938557	354	3444212	226
20	5108977	395	8019885	352	3479493	231
21	4962495	406	8098925	351	3513778	235
22	4814582	417	8175639	350	3547060	240
23	4665291	428	8250014	349	3579329	245
24	4514670	439	8322025	347	3610572	249
25	4362764	451	8391647	345	3640784	253
26	4209626	463	8458867	343	3669956	259
27	4055301	475	8523670	341	3698080	264
28	3899838	487	8586036	338	3725146	269
29	3743287	499	8645961	335	3751153	273
30	3585692	510	8703424	331	3776090	276
31	3427098	522	8758416	326	3799955	281
June 1	3267548	533	8810932	321	3822744	287
2	3107084	544	8860966	316	3844450	292
3	2945749	555	8908491	312	3865071	298
4	2783593	566	8953509	307	3884602	303
5	2620652	577	8996002	301	3903033	309
6	2456973	588	9035972	294	3920371	315
7	2292599	598	9073393	288	3936604	321
8	2127574	608	9108265	281	3951728	327
9	1961942	618	9140573	274	3965742	331
10	1795747	627	9170311	266	3978640	335
11	1629036	636	9197465	258	3990417	340
12	1461855	644	9222031	250	4001071	344
13	1294246	652	9244000	242	4010596	349
14	1126257	660	9263358	234	4018990	355
15	0957936	668	9280100	225	4026248	359
16	0789327	676	9294225	215	4032372	363
17	0620478	684	9305720	204	4037353	368
18	0451445	691	9314575	194	4041193	374
19	0282270	698	9320790	184	4043889	379
20	+0° 0113009	706	9324365	173	4045440	383
21	-0° 0056286	713	9325289	162	4045847	387
22	0225559	720	9323575	151	4045111	391
23	0394759	727	9319215	139	4043229	395
24	0563831	734	9312215	127	4040203	399
25	0732727	741	9302586	115	4036034	402
26	0901396	747	9290330	103	4030724	406
27	1069795	754	9275460	90	4024278	410
28	1237879	761	9257982	77	4016700	414
29	1405596	767	9237902	64	4007990	419
30	1572907	774	9215234	50	3998156	423
July 1	1739768	780	9189979	36	3987199	428
2	1906132	787	9162149	22	3975122	432
3	-0° 2071956	+794	+0° 9131756	-7	+0° 3961933	+437

Month and Day at Mean Noon.		X, True Eq ² of Date.	Reduc. to M. Eq ² of Jan. 1.	Y, True Eq ² of Date.	Reduc. to M. Eq ² of Jan. 1.	Z, True Eq ² of Date.	Reduc. to M. Eq ² of Jan. 1.
July	3	-0°2071956	+ 794	+0°9131756	- 7	+0°3961933	+437
	4	°2237196	800	°9098806	+ 8	°3947635	441
	5	°2401807	806	°9063302	23	°3932230	445
	6	°2565745	812	°9025262	38	°3915722	449
	7	°2728970	818	°8984696	54	°3898120	452
	8	°2891431	824	°8941608	70	°3879423	456
	9	°3053091	830	°8896009	86	°3859633	460
	10	°3213902	834	°8847913	102	°3838760	464
	11	°3373825	838	°8797325	118	°3816809	467
	12	°3532814	840	°8744259	134	°3793780	471
	13	°3690819	842	°8688726	151	°3769682	475
	14	°3847803	844	°8630740	167	°3744521	480
	15	°4003718	846	°8570310	183	°3718300	484
	16	°4158518	847	°8507450	199	°3691028	487
	17	°4312151	847	°8442173	215	°3662709	491
	18	°4464572	846	°8374498	232	°3633352	496
	19	°4615731	844	°8304444	250	°3602964	501
	20	°4765581	842	°8232031	267	°3571556	505
	21	°4914071	839	°8157285	284	°3539138	508
	22	°5061160	836	°8080225	302	°3505717	510
	23	°5206800	833	°8000877	319	°3471298	513
	24	°5350951	829	°7919268	336	°3435899	516
	25	°5493575	825	°7835418	354	°3399529	519
	26	°5634629	820	°7749373	372	°3362196	521
	27	°5774078	815	°7661139	390	°3323915	523
	28	°5911887	810	°7570749	407	°3284699	525
	29	°6048016	805	°7478230	424	°3244558	527
	30	°6182427	800	°7383605	443	°3203501	530
	31	°6315086	794	°7286906	462	°3161544	533
Aug.	1	°6445960	788	°7188158	480	°3118699	535
	2	°6575009	782	°7087386	498	°3074973	536
	3	°6702201	776	°6984620	516	°3030385	537
	4	°6827502	769	°6879882	534	°2984938	539
	5	°6950878	762	°6773205	552	°2938650	541
	6	°7072292	755	°6664609	570	°2891532	542
	7	°7191710	748	°6554129	588	°2843595	544
	8	°7309103	740	°6441783	607	°2794846	545
	9	°7424434	731	°6327604	626	°2745305	547
	10	°7537669	722	°6211617	644	°2694980	549
	11	°7648774	713	°6093856	662	°2643886	550
	12	°7757714	704	°5974344	679	°2592034	552
	13	°7864457	694	°5853116	696	°2539440	555
	14	°7968960	683	°5730203	713	°2486115	556
	15	°8071192	672	°5605641	730	°2432078	557
	16	°8171119	661	°5479462	747	°2377343	559
	17	°8268700	650	°5351703	764	°2321922	560
	18	-0°8363904	+ 638	+0°5222407	+ 781	+0°2265835	+562

Month and Day at Mean Noon.	X, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.	Y, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.	Z, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.
Aug. 18	-0.8363904	+ 638	+0.5222407	+ 781	+0.2265835	+ 562
19	.8456704	625	.5091613	797	.2209097	563
20	.8547064	611	.4959359	812	.2151724	564
21	.8634960	597	.4825687	827	.2093733	565
22	.8720370	583	.4690638	842	.2035144	565
23	.8803266	569	.4554253	856	.1975974	565
24	.8883624	554	.4416567	870	.1916238	564
25	.8961430	538	.4277629	884	.1855957	564
26	.9036656	522	.4137477	898	.1795148	564
27	.9109286	506	.3996146	912	.1733824	564
28	.9179294	490	.3853685	925	.1672013	564
29	.9246666	473	.3710129	937	.1609724	563
30	.9311382	456	.3565519	949	.1546979	562
31	.9373427	439	.3419892	960	.1483793	560
Sept. 1	.9432780	422	.3273291	971	.1420179	558
2	.9489422	404	.3126754	982	.1356165	556
3	.9543340	386	.2977317	993	.1291758	554
4	.9594514	368	.2828022	1003	.1226980	552
5	.9642930	350	.2677905	1013	.1161844	550
6	.9688572	331	.2527010	1023	.1096374	548
7	.9731424	312	.2375374	1033	.1030583	545
8	.9771467	293	.2223032	1044	.0964486	543
9	.9808682	273	.2070034	1054	.0898107	541
10	.9843060	254	.1916417	1064	.0831460	539
11	.9874582	234	.1762226	1074	.0764567	537
12	.9903227	214	.1607506	1084	.0697445	535
13	.9928984	194	.1452306	1093	.0630117	534
14	.9951832	174	.1296671	1102	.0562599	532
15	.9971770	153	.1140652	1111	.0494915	530
16	0.9988782	132	.0984295	1120	.0427086	527
17	1.0002863	111	.0827649	1129	.0359128	523
18	.0014005	90	.0670763	1137	.0291065	520
19	.0022198	69	.0513686	1145	.0222916	517
20	.0027450	48	.0356467	1153	.0154707	514
21	.0029752	27	.0199155	1161	.0086452	511
22	.0029106	+ 6	+0.0041794	1169	+0.0018177	509
23	.0025515	- 15	-0.0115563	1176	-0.0050097	506
24	.0018982	36	.0272871	1182	.0118353	502
25	1.0009503	58	.0430083	1188	.0186566	498
26	0.9997093	80	.0587154	1193	.0254720	494
27	.9981745	102	.0744039	1198	.0322794	491
28	.9963467	124	.0900693	1202	.0390769	486
29	.9942267	146	.1057075	1205	.0458622	481
30	.9918145	169	.1213142	1207	.0526341	476
Oct. 1	.9891112	192	.1368848	1208	.0593901	470
2	.9861165	215	.1524148	1209	.0661286	464
3	-0.9828317	- 238	-0.1679006	+ 1210	-0.0728477	+ 457

Month and Day at Mean Noon.		X, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.	Y, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.	Z, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.
Oct.	3	-0° 9828317	- 238	-0° 1679006	+ 1210	-0° 0728477	+ 457
	4	° 9792572	261	° 1833374	1210	° 0795453	452
	5	° 9753932	284	° 1987212	1210	° 0862199	446
	6	° 9712410	307	° 2140473	1210	° 0928691	440
	7	° 9668012	330	° 2293117	1209	° 0994917	433
	8	° 9620740	353	° 2445095	1208	° 1060850	427
	9	° 9570607	376	° 2596363	1207	° 1126475	422
	10	° 9517620	399	° 2746870	1206	° 1191768	415
	11	° 9461782	422	° 2896573	1205	° 1256714	408
	12	° 9403114	444	° 3045424	1203	° 1321283	400
	13	° 9341630	467	° 3193368	1201	° 1385470	393
	14	° 9277336	490	° 3340361	1199	° 1449239	387
	15	° 9210246	513	° 3486354	1196	° 1512576	380
	16	° 9140382	536	° 3631303	1193	° 1575460	373
	17	° 9067770	560	° 3775157	1190	° 1637871	365
	18	° 8992424	584	° 3917870	1187	° 1699788	357
	19	° 8914370	608	° 4059392	1184	° 1761190	350
	20	° 8833640	632	° 4199684	1181	° 1822062	344
	21	° 8750250	656	° 4338701	1178	° 1882380	337
	22	° 8664228	681	° 4476395	1175	° 1942126	330
	23	° 8575608	705	° 4612730	1171	° 2001283	322
	24	° 8484412	729	° 4747660	1167	° 2059831	314
	25	° 8390670	752	° 4881147	1162	° 2117754	306
	26	° 8294404	777	° 5013154	1157	° 2175034	299
	27	° 8195650	802	° 5143638	1152	° 2231652	292
	28	° 8094436	826	° 5272563	1145	° 2287594	283
	29	° 7990794	849	° 5399901	1137	° 2342846	274
	30	° 7884744	872	° 5525607	1129	° 2397388	265
	31	° 7776320	895	° 5649647	1121	° 2451205	256
Nov.	1	° 7665547	918	° 5771986	1113	° 2504283	246
	2	° 7552462	941	° 5892587	1103	° 2556605	236
	3	° 7437087	963	° 6011414	1093	° 2608156	226
	4	° 7319455	985	° 6128430	1083	° 2658920	216
	5	° 7199595	1007	° 6243595	1073	° 2708881	206
	6	° 7077542	1028	° 6356882	1062	° 2758027	196
	7	° 6953323	1049	° 6468243	1050	° 2806336	186
	8	° 6826978	1070	° 6577641	1038	° 2853795	176
	9	° 6698535	1091	° 6685044	1026	° 2900387	165
	10	° 6568033	1112	° 6790410	1013	° 2946096	154
	11	° 6435506	1133	° 6893702	1000	° 2990904	142
	12	° 6300993	1155	° 6994887	986	° 3034798	130
	13	° 6164540	1176	° 7093922	972	° 3077764	120
	14	° 6026186	1196	° 7190784	958	° 3119786	109
	15	° 5885975	1216	° 7285429	942	° 3160850	97
	16	° 5743950	1235	° 7377828	926	° 3200939	86
	17	° 5600163	1255	° 7467946	910	° 3240043	76
	18	-0° 5454654	-1275	-0° 7555758	+ 894	-0° 3278145	+ 66

Month and Day at Mean Noon.	X, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.	Y, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.	Z, True Eq ^d of Date.	Reduc. to M. Eq ^d of Jan. 1.
Nov. 18	-0° 5454654	-1275	-0° 7555758	+ 894	-0° 3278145	+ 66
19	5307477	1295	7641239	878	3315237	55
20	5158677	1315	7724355	862	3351307	44
21	5008303	1335	7805086	844	3386341	32
22	4856406	1355	7883417	826	3420332	21
23	4703025	1375	7959310	808	3453264	+ 9
24	4548210	1394	8032745	790	3485132	- 2
25	4392013	1413	8103709	772	3515925	12
26	4234476	1432	8172180	754	3545635	22
27	4075648	1451	8238135	734	3574250	33
28	3915575	1470	8301555	713	3601765	44
29	3754301	1489	8362427	692	3623173	56
30	3591876	1508	8420729	671	3653465	68
Dec. 1	3428342	1526	8476448	650	3677635	80
2	3263750	1544	8529562	628	3700674	92
3	3098146	1561	8580055	606	3722576	104
4	2931575	1578	8627905	585	3743332	116
5	2764090	1595	8673098	563	3762934	128
6	2595735	1612	8715617	542	3781375	140
7	2426561	1627	8755439	520	3798646	153
8	2256616	1642	8792545	496	3814740	166
9	2085954	1656	8826926	471	3829652	179
10	1914630	1670	8858563	445	3843374	192
11	1742095	1684	8887446	419	3855901	205
12	1570205	1696	8913559	393	3867230	218
13	1397218	1708	8936896	368	3877357	230
14	1223792	1719	8957439	342	3886271	243
15	1049988	1730	8975181	315	3893975	256
16	0875857	1741	8990121	287	3900463	270
17	0701463	1749	9002255	260	3905736	283
18	0526862	1757	9011584	232	3909792	296
19	0352109	1765	9018098	203	3912625	309
20	0177260	1773	9021798	173	3914239	321
21	-0° 0002372	1780	9022690	144	3914631	333
22	+0° 0172499	1786	9020776	114	3913808	345
23	0347303	1791	9016058	84	3911765	357
24	0521984	1796	9008539	54	3908504	369
25	0696491	1801	8998224	+ 24	3904030	381
26	0870771	1806	8985120	- 6	3898341	393
27	1044772	1810	8969231	37	3891446	405
28	1218443	1813	8950566	68	3883345	417
29	1391733	1816	8929127	99	3874038	429
30	1564592	1819	8904926	130	3863534	441
31	1736968	1822	8877970	161	3851834	452
32	+0° 1908811	-1825	-0° 8848263	- 192	-0° 3838940	-463

**PLANETARY
EPHEMERIDES
AT
MEAN NOON.**

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	h m s	South. ° ' "	°	h m	° ' "	South. ° ' "	9
Jan. 1	17 48 16.13	23 54 34.7	1341312	23 9.2	238 28 15.3	1 25 39.6	6642320
2	17 54 54.23	24 2 35.6	1366943	23 11.9	241 15 33.8	1 45 39.4	6656843
3	18 1 34.85	24 9 23.8	1390697	23 14.7	244 1 55.0	2 5 17.2	6668743
4	18 8 17.83	24 14 57.0	1412610	23 17.5	246 47 31.7	2 24 31.7	6678029
5	18 15 3.03	24 19 14.3	1432730	23 20.3	249 32 36.6	2 43 22.0	6684707
6	18 21 50.35	24 22 14.1	1451098	23 23.2	252 17 22.0	3 1 47.0	6688784
7	18 28 39.65	24 23 55.5	1467741	23 26.1	255 2 0.4	3 19 45.6	6690256
8	18 35 30.83	24 24 16.9	1482696	23 29.1	257 46 43.9	3 37 16.7	6689131
9	18 42 23.75	24 23 17.1	1495980	23 32.0	260 31 44.7	3 54 19.1	6685404
10	18 49 18.33	24 20 55.1	1507613	23 35.0	263 17 15.2	4 10 51.4	6679077
11	18 56 14.44	24 17 9.7	1517604	23 38.1	266 3 27.4	4 26 52.3	6670141
12	19 3 11.97	24 12 0.1	1525958	23 41.1	268 50 34.0	4 42 20.1	6658591
13	19 10 10.82	24 5 25.0	1532674	23 44.2	271 38 47.4	4 57 13.2	6644419
14	19 17 10.89	23 57 23.6	1537756	23 47.3	274 28 20.6	5 11 29.7	6627621
15	19 24 12.06	23 47 55.1	1541185	23 50.4	277 19 26.5	5 25 7.6	6608188
16	19 31 14.23	23 36 58.5	1542948	23 53.5	280 12 18.7	5 38 4.5	6586103
17	19 38 17.29	23 24 32.9	1543020	23 56.6	283 7 11.0	5 50 18.1	6561362
18	19 45 21.13	23 10 37.9	1541377	23 59.7	286 4 17.4	6 1 45.5	6533953
19	19 52 25.65	22 55 12.4	1537980	* *	289 3 52.7	6 12 23.8	6503870
20	19 59 30.74	22 38 15.9	1532789	0 2.9	292 6 12.3	6 22 9.4	6471101
21	20 6 36.28	22 19 48.1	1525757	0 6.0	295 11 31.8	6 30 58.8	6435647
22	20 13 42.15	21 59 47.9	1516827	0 9.2	298 20 7.5	6 38 47.9	6397503
23	20 20 48.23	21 38 15.5	1505933	0 12.4	301 32 16.7	6 45 32.2	6356679
24	20 27 54.40	21 15 10.1	1493005	0 15.5	304 48 16.9	6 51 6.9	6313180
25	20 35 0.53	20 50 31.6	1477958	0 18.7	308 8 26.6	6 55 26.6	6267027
26	20 42 6.47	20 24 20.1	1460706	0 21.9	311 33 4.8	6 58 25.6	6218254
27	20 49 12.09	19 56 35.2	1441142	0 25.0	315 2 31.6	6 59 57.6	6166899
28	20 56 17.20	19 27 17.6	1419154	0 28.2	318 37 7.2	6 59 55.8	6113023
29	21 3 21.63	18 56 27.4	1394615	0 31.3	322 17 13.0	6 58 13.0	6056703
30	21 10 25.17	18 24 5.5	1367395	0 34.4	326 3 10.6	6 54 41.6	5998041
Feb. 31	21 17 27.59	17 50 12.4	1337337	0 37.5	329 55 22.4	6 49 13.3	5937166
1	21 24 28.64	17 14 49.8	1304283	0 40.6	333 54 10.5	6 41 39.9	5874235
2	21 31 28.01	16 37 59.1	1268055	0 43.7	337 59 57.8	6 31 52.6	5809449
3	21 38 25.33	15 59 42.6	1228461	0 46.7	342 13 6.4	6 19 42.9	5743048
4	21 45 20.23	15 20 2.8	1185298	0 49.7	346 33 58.0	6 5 2.0	5675321
5	21 52 12.22	14 39 3.3	1138357	0 52.6	351 2 53.5	5 47 42.1	5606620
6	21 59 0.77	13 56 47.9	1087403	0 55.5	355 40 11.7	5 27 35.9	5537344
7	22 5 45.22	13 13 21.8	1032205	0 58.3	0 26 9.5	5 4 37.4	5467974
8	22 12 24.87	12 28 50.9	0972518	1 1.0	5 21 0.6	4 38 42.7	5399050
9	22 18 58.87	11 43 22.3	0908099	1 3.6	10 24 54.5	4 9 50.1	5331196
10	22 25 26.24	10 57 4.5	0838708	1 6.1	15 37 56.0	3 38 1.4	5265103
11	22 31 45.89	10 10 7.1	0764117	1 8.5	21 0 3.5	3 3 22.0	5201527

tric.

Heliocentric.

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MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div> <div>South.</div> <div>9</div> </div> <div> <div>North.</div> <div>9</div> </div> </div>							
Mar. 20	22 44 23.31	6 44 47.9	.8248257	22 47.5	212 6 50.8	1 46 46.4	.6393432
21	22 44 26.99	7 0 34.2	.8318660	22 44.0	215 13 26.7	1 24 28.2	.6431851
22	22 44 52.28	7 13 53.4	.8391742	22 40.8	218 16 49.5	1 2 18.1	.6467584
23	22 45 38.35	7 24 45.6	.8466871	22 37.9	221 17 16.9	0 40 18.5	.6500626
24	22 46 44.27	7 33 11.7	.8543489	22 35.4	224 15 5.8	0 18 31.6	.6530987
25	22 48 9.02	7 39 14.1	.8621123	22 33.2	227 10 32.3	0 3 1.1	.6558669
26	22 49 51.61	7 42 55.5	.8699358	22 31.2	230 3 52.0	0 24 17.6	.6583683
27	22 51 51.01	7 44 19.6	.8777861	22 29.5	232 55 19.8	0 45 16.7	.6606041
28	22 54 6.25	7 43 29.7	.8856338	22 28.0	235 45 9.9	1 5 56.9	.6625746
29	22 56 36.32	7 40 30.0	.8934555	22 26.8	238 33 36.6	1 26 17.2	.6642816
30	22 59 20.32	7 35 24.2	.9012310	22 25.8	241 20 53.0	1 46 16.4	.6657258
31	23 2 17.40	7 28 16.2	.9089450	22 25.0	244 7 12.5	2 5 53.4	.6669077
Apr. 1	23 5 26.72	7 19 10.1	.9165853	22 24.4	246 52 48.0	2 25 7.2	.6678280
2	23 8 47.53	7 8 9.4	.9241404	22 24.0	249 37 52.0	2 43 56.7	.6684876
3	23 12 19.09	6 55 18.0	.9316035	22 23.7	252 22 37.0	3 2 20.9	.6688871
4	23 16 0.80	6 40 39.2	.9389680	22 23.6	255 7 15.2	3 20 18.7	.6690264
5	23 19 52.04	6 24 16.6	.9462293	22 23.7	257 51 59.0	3 37 49.0	.6689057
6	23 23 52.28	6 6 13.2	.9533838	22 23.9	260 37 0.5	3 54 50.4	.6685248
7	23 28 1.03	5 46 32.2	.9604295	22 24.2	263 22 32.0	4 11 21.8	.6678839
8	23 32 17.87	5 25 16.5	.9673642	22 24.6	266 8 45.7	4 27 21.6	.6669822
9	23 36 42.39	5 2 29.0	.9741877	22 25.2	268 55 54.2	4 42 48.4	.6658191
10	23 41 14.25	4 38 12.2	.9808985	22 25.9	271 44 9.8	4 57 40.4	.6643936
11	23 45 53.15	4 12 28.9	.9874966	22 26.7	274 33 45.6	5 11 55.8	.6627056
12	23 50 38.81	3 45 21.5	.9939822	22 27.7	277 24 54.6	5 25 32.4	.6607539
13	23 55 31.01	3 16 52.5	.0003553	22 28.7	280 17 50.4	5 38 28.0	.6585372
14	0 0 29.59	2 47 4.2	.0066160	22 29.8	283 12 46.5	5 50 40.2	.6560548
15	0 5 34.35	2 15 58.9	.0127644	22 31.0	286 9 57.3	6 2 6.2	.6533056
16	0 10 45.21	1 43 38.6	.0188002	22 32.3	289 9 37.5	6 12 42.8	.6502887
17	0 16 2.07	1 10 5.9	.0247231	22 33.8	292 12 2.4	6 22 26.7	.6470036
18	0 21 24.91	0 35 22.5	.0305322	22 35.4	295 17 27.6	6 31 14.4	.6434498
19	0 26 53.67	0 0 29.4	.0362272	22 37.0	298 26 9.7	6 39 1.5	.6396269
20	0 32 28.37	0 37 27.7	.0418057	22 38.7	301 38 25.8	6 45 43.7	.6355361
21	0 38 9.08	1 15 29.8	.0472658	22 40.6	304 54 33.4	6 51 16.1	.6311780
22	0 43 55.85	1 54 31.1	.0526048	22 42.5	308 14 51.1	6 55 33.4	.6265545
23	0 49 48.76	2 34 38.3	.0578198	22 44.5	311 39 38.8	6 58 29.8	.6216690
24	0 55 47.96	3 15 39.9	.0629064	22 46.7	315 9 14.0	6 59 59.0	.6165256
25	1 1 53.57	3 57 36.5	.0678599	22 48.9	318 43 59.6	6 59 54.1	.6111304
26	1 8 5.76	4 40 25.9	.0726743	22 51.3	322 24 16.0	6 58 8.1	.6054909
27	1 14 24.75	5 24 4.6	.0773430	22 53.8	326 10 25.0	6 54 33.2	.5996176
28	1 20 50.71	6 8 30.3	.0818578	22 56.4	330 2 48.8	6 49 1.2	.5935231
29	1 27 23.88	6 53 39.5	.0862103	22 59.2	334 1 49.6	6 41 23.7	.5872238

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>North.</i> <i>° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>South.</i> <i>° ' "</i>	<i>9</i>
Apr. 29	1 27 23.88	6 53 39.5	0.862103	22 59.2	334 1 49.6	6 41 23.7	5872238
30	1 34 4.50	7 39 28.7	0.903899	23 2.0	338 7 50.3	6 31 32.2	5807401
May 1	1 40 52.81	8 25 54.2	0.943845	23 5.0	342 21 13.1	6 19 17.8	5740952
2	1 47 49.08	9 12 51.5	0.981815	23 8.1	346 42 19.6	6 4 32.1	5673190
3	1 54 53.55	10 0 15.9	1.017659	23 11.4	351 11 30.4	5 47 7.1	5604467
4	2 2 6.45	10 52 2.1	1.051217	23 14.8	355 49 4.7	5 26 55.6	5535180
5	2 9 28.02	11 36 4.1	1.082316	23 18.4	0 35 19.0	5 3 51.6	5465818
6	2 16 58.43	12 24 15.3	1.110761	23 22.1	5 30 26.9	4 37 51.4	5396918
7	2 24 37.81	13 12 28.5	1.136352	23 26.0	10 34 37.8	4 8 53.3	5329110
8	2 32 26.28	14 0 35.5	1.158868	23 30.0	15 47 56.5	3 36 59.1	5263083
9	2 40 23.83	14 48 27.2	1.178091	23 34.2	21 10 20.9	3 2 14.6	5199599
10	2 48 30.37	15 35 54.0	1.193790	23 38.5	26 41 42.4	2 24 49.9	5139471
11	2 56 45.73	16 22 45.4	1.205734	23 43.0	32 21 43.5	1 45 0.8	5083561
12	3 5 9.59	17 8 49.8	1.213706	23 47.6	38 9 57.8	1 3 8.6	5032747
13	3 13 41.53	17 53 55.8	1.217485	23 52.3	44 5 48.4	0 19 40.4	4987895
14	3 22 20.95	18 37 50.9	1.216888	23 57.1	50 8 27.9	0 24 51.0	4949834
15	3 31 7.11	19 20 22.5	1.211743	* *	56 16 58.3	1 9 47.7	4919319
16	3 39 59.15	20 1 18.4	1.201921	0 2.1	62 30 11.8	1 54 28.5	4896981
17	3 48 56.06	20 40 26.3	1.187325	0 7.1	68 46 51.4	2 38 9.6	4883299
18	3 57 56.69	21 17 34.9	1.167907	0 12.2	75 5 33.0	3 20 7.3	4878581
19	4 6 59.82	21 52 33.6	1.143663	0 17.3	81 24 48.0	3 59 39.8	4882932
20	4 16 4.14	22 25 13.3	1.114637	0 22.5	87 43 5.2	4 36 9.2	4896258
21	4 25 8.29	22 55 26.1	1.080921	0 27.6	93 58 54.8	5 9 3.4	4918255
22	4 34 10.94	23 23 5.9	1.042644	0 32.7	100 10 51.0	5 37 57.4	4948452
23	4 43 10.73	23 48 7.9	0.999978	0 37.8	106 17 33.7	6 2 34.1	4986223
24	4 52 6.37	24 10 29.4	0.953119	0 42.8	112 17 52.2	6 22 44.2	5030814
25	5 0 56.61	24 30 9.4	0.902287	0 47.7	118 10 46.0	6 38 25.9	5081405
26	5 9 40.33	24 47 8.1	0.847717	0 52.5	123 55 26.0	6 49 44.1	5137126
27	5 18 16.46	25 1 27.1	0.789653	0 57.2	129 31 14.6	6 56 49.4	5197102
28	5 26 44.08	25 13 9.6	0.728342	1 1.7	134 57 45.6	6 69 56.5	5260466
29	5 35 2.31	25 22 19.2	0.664032	1 6.1	140 14 43.0	6 59 22.9	5326405
30	5 43 10.41	25 29 1.0	0.596953	1 10.3	145 22 0.6	6 55 28.3	5394155
31	5 51 7.73	25 33 20.5	0.527337	1 14.3	150 19 39.8	6 48 32.9	5463024
June 1	5 58 53.67	25 35 23.6	0.455393	1 18.1	155 7 49.4	6 38 57.1	5532380
2	6 6 27.76	25 35 16.5	0.381324	1 21.7	159 46 43.1	6 27 0.7	5601678
3	6 13 49.55	25 33 6.2	0.305319	1 25.2	164 16 39.1	6 13 2.3	5670433
4	6 20 58.65	25 28 59.2	0.227557	1 28.4	168 37 58.7	5 57 19.5	5738242
5	6 27 54.73	25 23 2.7	0.148184	1 31.4	172 51 5.5	5 40 8.0	5804747
6	6 34 37.51	25 15 23.4	0.067363	1 34.1	176 56 24.3	5 21 42.3	5869658
7	6 41 6.69	25 6 8.4	9985230	1 36.6	180 54 20.7	5 2 15.4	5932727
8	6 47 22.06	24 55 24.3	9901906	1 38.9	184 45 20.8	4 41 58.5	5993757

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>North. ° ' "</i>	<i>9</i>	<i>h m</i>	<i>° ' "</i>	<i>North. ° ' "</i>	<i>9</i>
June 8	6 47 22.06	24 55 24.3	.9901906	1 38.9	184 45 20.8	4 41 58.5	.5993757
9	6 53 23.37	24 43 18.4	.9817519	1 41.0	188 29 50.2	4 21 1.9	.6052582
10	6 59 10.41	24 29 57.2	.9732184	1 42.8	192 8 14.3	3 59 34.4	.6109070
11	7 4 42.96	24 15 27.1	.9646002	1 44.4	195 40 57.7	3 37 43.4	.6163126
12	7 10 0.79	23 59 55.1	.9559090	1 45.7	199 8 24.4	3 15 36.1	.6214663
13	7 15 3.70	23 43 27.4	.9471553	1 46.8	202 30 57.4	2 53 17.8	.6263621
14	7 19 51.46	23 26 10.5	.9383495	1 47.7	205 48 58.8	2 30 53.7	.6309963
15	7 24 23.82	23 8 10.6	.9295021	1 48.2	209 2 49.7	2 8 28.1	.6353651
16	7 28 40.53	22 49 34.3	.9206254	1 48.5	212 12 50.5	1 46 4.7	.6394668
17	7 32 41.34	22 30 27.5	.9117315	1 48.6	215 19 20.2	1 23 46.7	.6433005
18	7 36 25.94	22 10 56.6	.9028325	1 48.4	218 22 37.4	1 1 36.9	.6468650
19	7 39 54.06	21 51 7.8	.8939434	1 47.9	221 22 59.9	0 39 37.7	.6501609
20	7 43 5.37	21 31 7.1	.8850793	1 47.1	224 20 44.2	0 17 51.1	.6531887
		<i>South.</i>					
21	7 45 59.57	21 11 0.9	.8762572	1 46.1	227 16 6.7	0 34 1.0	.6559486
22	7 48 36.27	20 50 55.4	.8674963	1 44.7	230 9 22.9	0 24 57.0	.6584418
23	7 50 55.23	20 30 56.6	.8588176	1 43.1	233 0 47.5	0 45 55.6	.6606692
24	7 52 56.03	20 11 11.2	.8502444	1 41.1	235 50 35.1	1 6 35.2	.6626316
25	7 54 38.39	19 51 45.1	.8418038	1 38.8	238 38 59.4	1 26 54.9	.6643302
26	7 56 2.02	19 32 44.6	.8335243	1 36.3	241 26 14.0	1 46 53.4	.6657663
27	7 57 6.67	19 14 16.1	.8254392	1 33.4	244 12 32.1	2 6 29.7	.6669399
28	7 57 52.13	18 56 25.8	.8175839	1 30.2	246 58 6.5	2 25 42.7	.6678523
29	7 58 18.33	18 39 19.8	.8099973	1 26.7	249 43 9.2	2 44 31.5	.6685038
30	7 58 25.20	18 23 4.4	.8027217	1 22.9	252 27 54.5	3 25 4.9	.6688952
July 1	7 58 12.81	18 7 45.3	.7958033	1 18.7	255 12 32.9	3 20 51.9	.6690264
2	7 57 41.43	17 53 28.4	.7892904	1 14.2	257 57 17.2	3 38 21.2	.6688978
3	7 56 51.40	17 40 19.2	.7832352	1 9.5	260 42 19.5	3 55 21.7	.6685092
4	7 55 43.27	17 28 22.7	.7776912	1 4.4	263 27 52.2	4 11 52.1	.6678601
5	7 54 17.86	17 17 43.7	.7727129	0 59.0	266 14 7.6	4 27 51.0	.6669506
6	7 52 36.14	17 8 26.6	.7683569	0 53.4	269 1 18.0	4 43 16.7	.6657793
7	7 50 39.40	17 0 34.7	.7646786	0 47.5	271 49 36.0	4 58 7.6	.6643460
8	7 48 29.11	16 54 11.0	.7617304	0 41.4	274 39 14.6	5 12 21.8	.6626500
9	7 46 7.07	16 49 17.4	.7595626	0 35.2	277 30 26.8	5 25 57.2	.6606904
10	7 43 35.27	16 45 55.5	.7582211	0 28.7	280 23 26.0	5 38 51.5	.6584656
11	7 40 55.98	16 44 5.5	.7577442	0 22.1	283 18 26.1	5 51 2.3	.6559754
12	7 38 11.65	16 43 46.7	.7581637	0 15.5	286 15 41.4	6 2 26.8	.6532182
13	7 35 24.91	16 44 57.8	.7595021	0 8.8	289 15 26.4	6 13 1.8	.6501932
14	7 32 38.49	16 47 36.1	.7617719	{ 0 0 0 }	292 17 56.7	6 22 44.1	.6469002
15	7 29 55.21	16 51 38.6	.7649756	23 48.9	295 23 27.8	6 31 29.8	.6433384
16	7 27 17.89	16 57 0.9	.7691054	23 42.6	298 32 16.2	6 39 15.0	.6395076
17	7 24 49.26	17 3 37.9	.7741413	23 36.4	301 44 39.0	6 45 55.1	.6354089
18	7 22 31.99	17 11 24.0	.7800557	23 30.4	305 0 54.1	6 51 25.3	.6310430
19	7 20 28.60	17 20 13.2	.7868105	23 24.7	308 21 19.8	6 55 40.2	.6264118

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	North.		9		South.		9
July 19	h m s 7 20 28.60	° ' " 17 20 13.2	7868105	h m 23 24.7	° ' " 308 21 19.8	° ' " 6 55 40.2	6264118
20	7 18 41.41	17 29 58.2	7943602	23 19.3	311 46 15.2	6 58 33.9	6215187
21	7 17 12.53	17 40 31.6	8026530	23 14.2	315 16 0.2	7 0 0.3	6163680
22	7 16 3.81	17 51 45.7	8116319	23 9.5	318 50 55.5	6 59 52.4	6109653
23	7 15 16.90	18 3 32.1	8212357	23 5.1	322 31 22.3	6 58 3.2	6053190
24	7 14 53.17	18 15 42.3	8314005	23 1.2	326 17 42.2	6 54 24.7	5994394
25	7 14 53.78	18 28 7.5	8420622	22 57.7	330 10 17.5	6 48 49.0	5933387
26	7 15 19.64	18 40 38.3	8531540	22 54.6	334 9 30.7	6 41 7.5	5870341
27	7 16 11.45	18 53 5.0	8646114	22 51.9	338 15 44.2	6 31 11.7	5805453
28	7 17 29.73	19 5 18.1	8763705	22 49.7	342 29 20.5	6 18 52.8	5738966
29	7 19 14.80	19 17 7.5	8883679	22 47.9	346 50 41.1	6 4 2.3	5671174
30	7 21 26.79	19 28 22.6	9005421	22 46.6	351 20 6.6	5 46 32.3	5602429
Aug. 31	7 24 5.72	19 38 52.8	9128338	22 45.7	355 57 56.0	5 26 15.7	5533137
1	7 27 11.43	19 48 27.4	9251845	22 45.3	0 44 25.7	5 3 6.4	5463786
2	7 30 43.63	19 56 55.3	9375383	22 45.4	5 39 49.4	4 37 0.8	5394914
3	7 34 41.89	20 4 5.1	9498401	22 45.8	10 44 16.5	4 7 57.3	5327153
4	7 39 5.62	20 9 45.8	9620364	22 46.6	15 57 50.9	3 35 58.0	5261194
5	7 43 54.09	20 13 46.0	9740758	22 47.8	21 20 31.2	3 1 8.4	5197802
6	7 49 6.45	20 15 55.0	9859075	22 49.5	26 52 8.0	2 23 39.2	5137792
7	7 54 41.62	20 16 2.2	9974830	22 51.5	32 32 23.8	1 43 46.1	5082024
8	8 0 38.41	20 13 57.7	0087557	22 53.8	38 20 51.7	1 1 50.6	5031378
9	8 6 55.45	20 9 32.7	0196814	22 56.4	44 16 54.6	0 18 20.1	4986720
10	8 13 31.20	20 2 39.3	0302183	22 59.4	50 19 45.0	0 26 12.5	4948876
11	8 20 23.92	19 53 10.8	0403291	23 2.6	56 28 24.2	1 11 9.4	4918600
12	8 27 31.84	19 41 2.8	0499801	23 6.0	62 41 44.4	1 55 48.9	4896513
13	8 34 52.97	19 26 12.2	0591427	23 9.6	68 58 28.2	2 39 27.4	4883095
14	8 42 25.32	19 8 38.2	0677935	23 13.3	75 17 11.5	3 21 21.3	4878645
15	8 50 6.82	18 48 21.5	0759156	23 17.2	81 36 25.4	4 0 48.7	4883266
16	8 57 55.46	18 25 25.3	0834978	23 21.1	87 54 39.0	4 37 12.0	4896850
17	9 5 49.25	17 59 54.4	0905350	23 25.1	94 10 22.4	5 9 59.2	4919095
18	9 13 46.31	17 31 55.4	0970286	23 29.2	100 22 9.7	5 38 45.9	4949525
19	9 21 44.87	17 1 35.7	1029849	23 33.2	106 28 41.4	6 3 14.4	4987502
20	9 29 43.37	16 29 4.5	1084152	23 37.3	112 28 47.1	6 23 16.4	5032281
21	9 37 40.39	15 54 31.5	1133346	23 41.3	118 21 26.5	6 38 50.1	5083033
22	9 45 34.73	15 18 6.7	1177623	23 45.2	124 5 50.8	6 50 0.6	5138890
23	9 53 25.33	14 40 0.8	1217186	23 49.0	129 41 22.9	6 56 58.5	5198973
24	10 1 11.39	14 0 23.7	1252266	23 52.7	135 7 36.7	6 59 58.6	5262421
25	10 8 52.20	13 19 26.0	1283097	23 56.4	140 24 16.8	6 59 18.7	5328420
26	10 16 27.27	12 37 17.0	1309913	23 59.9	145 31 17.0	6 55 18.3	5396208
27	10 23 56.21	11 54 6.3	1332950	* *	150 28 39.0	6 48 17.8	5465096
28	10 31 18.78	11 10 2.4	1352437	0 3.4	155 16 31.7	6 38 37.5	5534454

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div> <div>h m s</div> <div>° ' "</div> <div>°</div> </div> <div> <div>h m</div> <div>° ' "</div> <div>°</div> </div> <div> <div>h m</div> <div>° ' "</div> <div>°</div> </div> </div>							
Aug. 28	10 31 18.78	11 10 2.4	1352437	0 3.4	155 16 31.7	6 38 37.5	5534454
29	10 38 34.83	10 25 13.6	1368589	0 6.7	159 55 9.1	6 26 37.2	5603738
30	10 45 44.29	9 39 47.4	1381613	0 9.9	164 24 49.5	6 12 35.4	5672468
31	10 52 47.20	8 53 50.6	1391707	0 13.0	168 45 54.1	5 56 49.6	5740239
Sept. 1	10 59 43.62	8 7 29.7	1399044	0 16.0	172 58 46.6	5 39 35.7	5806697
2	11 6 33.66	7 20 50.3	1403788	0 18.9	177 3 52.0	5 21 8.0	5871553
3	11 13 17.49	6 33 57.8	1406097	0 21.7	181 1 35.7	5 1 39.3	5934563
4	11 19 55.31	5 46 56.9	1406099	0 24.4	184 52 23.8	4 41 21.1	5995527
5	11 26 27.29	4 59 51.8	1403922	0 27.0	188 36 42.1	4 20 23.4	6054281
6	11 32 53.69	4 12 46.7	1399675	0 29.5	192 14 55.7	3 58 55.0	6110699
7	11 39 14.69	3 25 45.0	1393456	0 31.9	195 47 29.4	3 37 3.5	6164676
8	11 45 30.56	2 38 50.3	1385349	0 34.2	199 14 47.1	3 14 55.6	6216136
9	11 51 41.50	1 52 5.2	1375434	0 36.5	202 37 11.8	2 52 37.1	6265017
10	11 57 47.75	1 5 32.4	1363770	0 38.7	205 55 5.5	2 30 12.9	6311279
11	12 3 49.53	0 19 14.7	1350418	0 40.8	209 8 49.4	2 7 47.2	6354888
South.							
12	12 9 47.05	0 26 45.7	1335419	0 42.8	212 18 43.5	1 45 23.9	6395825
13	12 15 40.52	1 12 26.6	1318813	0 44.7	215 25 7.3	1 23 6.1	6434082
14	12 21 30.13	1 57 46.1	1300630	0 46.6	218 28 19.2	1 0 56.6	6469648
15	12 27 16.07	2 42 42.2	1280892	0 48.4	221 28 36.7	0 38 57.7	6502526
16	12 32 58.49	3 27 13.1	1259620	0 50.2	224 26 16.7	0 17 11.5	6532723
South.							
17	12 38 37.58	4 11 17.3	1236823	0 51.9	227 21 35.2	0 4 20.2	6560245
18	12 44 13.47	4 54 53.1	1212501	0 53.6	230 14 47.8	0 25 35.7	6585095
19	12 49 46.31	5 37 58.6	1186661	0 55.2	233 6 9.4	0 46 33.7	6607292
20	12 55 16.19	6 20 32.6	1159287	0 56.7	235 55 54.2	1 7 12.8	6626837
21	13 0 43.23	7 2 33.7	1130380	0 58.2	238 44 16.4	1 27 31.9	6643747
22	13 6 7.52	7 44 0.2	1099914	0 59.7	241 31 29.1	1 47 29.7	6658030
23	13 11 29.11	8 24 50.6	1067867	1 1.1	244 17 45.8	2 7 5.4	6669688
24	13 16 48.07	9 5 3.5	1034220	1 2.5	247 3 19.1	2 26 17.7	6678734
25	13 22 4.43	9 44 37.4	0998935	1 3.8	249 48 21.7	2 45 5.7	6685173
26	13 27 18.19	10 23 30.8	0961982	1 5.1	252 33 6.1	3 3 28.3	6689010
27	13 32 29.33	11 1 42.1	0923317	1 6.3	255 17 44.4	3 21 24.5	6690246
28	13 37 37.84	11 39 9.6	0882899	1 7.5	258 2 29.0	3 38 53.0	6688881
29	13 42 43.65	12 15 51.8	0840675	1 8.7	260 47 32.1	3 55 52.6	6684916
30	13 47 46.66	12 51 46.9	0796595	1 9.8	263 33 6.0	4 12 22.1	6678350
Oct. 1	13 52 46.75	13 26 53.0	0750605	1 10.8	266 19 22.6	4 28 19.9	6666175
2	13 57 43.75	14 1 8.2	0702637	1 11.8	269 6 34.8	4 43 44.6	6657385
3	14 2 37.49	14 34 30.4	0652627	1 12.8	271 54 55.0	4 58 34.4	6642972
4	14 7 27.71	15 6 57.6	0600510	1 13.7	274 44 36.2	5 12 47.4	6625934
5	14 12 14.14	15 38 27.3	0546212	1 14.5	277 35 51.4	5 26 21.6	6606259
6	14 16 56.43	16 8 57.0	0489659	1 15.3	280 28 54.0	5 39 14.6	6583931
7	14 21 34.17	16 38 24.1	0430774	1 16.0	283 23 58.0	5 51 24.0	6558948

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div> <div>h m s</div> <div>° ' "</div> <div>°</div> </div> <div> <div>h m</div> <div>° ' "</div> <div>°</div> </div> </div>							
Oct. 7	14 21 34.17	16 38 24.1	0430774	1 16.0	283 23 58.0	5 51 24.0	6558948
8	14 26 6.91	17 6 45.6	0369477	1 16.6	286 21 17.5	6 2 47.0	6531295
9	14 30 34.10	17 33 58.2	0305690	1 17.1	289 21 7.3	6 13 20.5	6500963
10	14 34 55.13	17 59 58.5	0239331	1 17.5	292 23 42.7	6 23 1.0	6467954
11	14 39 9.29	18 24 42.9	0170332	1 17.8	295 29 19.4	6 31 45.0	6432254
12	14 43 15.76	18 48 7.0	0098615	1 17.9	298 38 14.0	6 39 28.3	6393866
13	14 47 13.63	19 10 6.3	0024127	1 17.9	301 50 43.6	6 46 6.3	6352797
9							
14	14 51 1.83	19 30 35.6	9946810	1 17.8	305 7 5.9	6 51 34.3	6309057
15	14 54 39.23	19 49 29.2	9866639	1 17.4	308 27 39.4	6 55 46.7	6262664
16	14 58 4.49	20 6 41.3	9783602	1 16.9	311 52 43.2	6 58 37.9	6213656
17	15 1 16.12	20 22 4.4	9697727	1 16.2	315 22 37.4	7 0 1.5	6162069
18	15 4 12.50	20 35 31.0	9609074	1 15.2	318 57 42.4	6 59 50.7	6107967
19	15 6 51.82	20 46 52.3	9517762	1 13.8	322 38 19.5	6 57 58.2	6051432
20	15 9 12.13	20 55 58.6	9423978	1 12.2	326 24 50.5	6 54 16.2	5992563
21	15 11 11.27	21 2 39.3	9327988	1 10.2	330 17 37.6	6 48 36.8	5931493
22	15 12 47.01	21 6 42.3	9230166	1 7.9	334 17 3.2	6 40 51.3	5868387
23	15 13 56.99	21 7 55.0	9131015	1 5.1	338 23 29.9	6 30 51.3	5803445
24	15 14 38.80	21 6 3.1	9031195	1 1.8	342 37 19.9	6 18 27.9	5730913
25	15 14 50.08	21 0 51.9	8931544	0 58.1	346 58 54.9	6 3 32.7	5669086
26	15 14 28.67	20 52 6.2	8833111	0 53.8	351 28 35.5	5 45 57.7	5600316
27	15 13 32.69	20 39 31.4	8737187	0 48.9	356 6 40.5	5 25 35.8	5531015
28	15 12 0.83	20 22 54.0	8645309	0 43.4	0 53 26.5	5 2 21.2	5461666
29	15 9 52.54	20 2 3.7	8559271	0 37.4	5 49 6.7	4 36 10.1	5392817
30	15 7 8.31	19 36 55.5	8481088	0 30.7	10 53 50.4	4 7 1.2	5325096
31	15 3 49.92	19 7 30.6	8412957	0 23.4	16 7 41.7	3 34 56.5	5259202
Nov. 1	15 0 0.63	18 34 1.4	8357143	0 15.7	21 30 38.7	3 0 1.9	5195899
2	14 55 45.35	17 56 51.5	8315884	0 7.4	27 2 31.8	2 22 28.0	5136003
3	14 51 10.61	17 16 38.7	8291171	23 50.4	32 43 3.2	1 42 30.8	5080376
4	14 46 24.32	16 34 14.2	8284606	23 41.7	38 31 45.8	1 0 31.9	5029898
5	14 41 35.39	15 50 42.1	8297210	23 33.1	44 28 2.1	0 16 59.0	4985435
North.							
6	14 36 53.22	15 7 14.9	8329301	23 24.8	50 31 4.2	0 27 35.0	4947811
7	14 32 27.00	14 25 8.6	8380413	23 16.8	56 39 53.3	1 12 31.9	4917775
8	14 28 25.11	13 45 36.6	8449354	23 9.4	62 53 21.1	1 57 10.3	4895944
9	14 24 54.64	13 9 44.7	8534286	23 2.6	69 10 10.2	2 40 46.3	4882799
10	14 22 1.02	12 38 25.9	8632908	22 56.4	75 28 56.0	3 22 36.2	4878624
11	14 19 47.91	12 12 18.2	8742642	22 51.0	81 48 9.7	4 15 8.6	4883523
12	14 18 17.21	11 51 44.2	8860845	22 46.2	88 6 20.3	4 38 15.7	4897377
13	14 17 29.26	11 36 51.6	8984953	22 42.1	94 21 58.0	5 10 56.0	4919885
14	14 17 23.19	11 27 35.7	9112616	22 38.7	100 33 37.0	5 39 34.8	4950552
15	14 17 57.13	11 23 42.0	9241769	22 36.0	106 39 58.2	6 3 55.4	4988755
16	14 19 8.58	11 24 48.9	9370665	22 33.8	112 39 51.2	6 23 49.1	5033729
17	14 20 54.61	11 30 30.2	9497891	22 32.1	118 32 16.3	6 39 14.6	5084652
18	14 23 12.13	11 40 17.8	9622335	22 30.9	124 16 25.1	6 50 17.1	5140654
19	14 25 58.08	11 53 42.3	9743167	22 30.1	129 51 40.6	6 57 7.5	5200854

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div> <div>h m s</div> <div>South.</div> <div>9</div> </div> <div> <div>h m</div> <div>North.</div> <div>9</div> </div> </div>							
Nov. 19	14 25 58.08	11 53 42.3	09743167	22 30.1	129 51 40.6	6 57 7.5	5200854
20	14 29 9.43	12 10 15.2	09859787	22 29.7	135 17 37.2	7 0 0.6	5264395
21	14 32 43.41	12 29 29.3	09971793	22 29.6	140 33 59.7	6 59 14.2	5330460
22	14 36 37.39	12 50 59.1	00078944	22 29.9	145 40 42.2	6 55 8.0	5398296
23	14 40 49.07	13 14 21.4	01811222	22 30.4	150 37 46.8	6 48 2.2	5467208
24	14 45 16.36	13 39 15.2	0278307	22 31.1	155 25 22.3	6 38 17.3	5536572
25	14 49 57.41	14 5 21.3	0370549	22 32.1	160 3 43.0	6 26 12.9	5605848
26	14 54 50.61	14 32 23.0	0457956	22 33.2	164 33 7.2	6 12 7.7	5674555
27	14 59 54.53	15 0 5.6	0540669	22 34.4	168 53 56.5	5 56 19.0	5742294
28	15 5 7.99	15 28 15.6	0618851	22 35.8	173 6 34.3	5 39 2.5	5808710
29	15 10 29.94	15 56 41.5	0692677	22 37.4	177 11 25.8	5 20 32.8	5873514
30	15 15 59.47	16 25 13.3	0762341	22 39.0	181 8 56.4	5 1 2.4	5936466
Dec. 1	15 21 35.80	16 53 41.7	0828027	22 40.8	184 59 32.3	4 40 42.9	5997367
2	15 27 18.29	17 21 59.0	0889922	22 42.6	188 43 39.0	4 19 44.1	6056052
3	15 33 6.35	17 49 58.2	0948203	22 44.6	192 21 41.8	3 58 14.8	6112395
4	15 38 59.52	18 17 33.1	1003048	22 46.6	195 54 5.6	3 36 22.7	6166300
5	15 44 57.37	18 44 38.2	1054020	22 48.7	199 21 14.0	3 14 14.5	6217682
6	15 50 59.56	19 11 8.6	1103073	22 50.9	202 43 30.2	5 1 55.7	6266484
7	15 57 5.79	19 37 0.4	1148555	22 53.1	206 1 15.7	2 29 31.3	6312666
8	16 3 15.79	20 2 9.2	1191201	22 55.4	209 14 52.3	2 7 5.7	6356193
9	16 9 29.35	20 26 31.5	1231141	22 57.7	212 24 39.7	1 44 42.6	6397050
10	16 15 46.25	20 50 4.3	1268496	23 0.1	215 30 57.4	1 22 25.0	6435224
11	16 22 6.39	21 12 44.6	1303368	23 2.6	218 34 3.6	1 0 15.7	6470708
12	16 28 29.56	21 34 30.2	1335864	23 5.1	221 34 16.1	0 38 17.2	6503506
13	16 34 55.65	21 55 17.9	1366077	23 7.6	224 31 51.4	0 16 31.4	6533621
14	16 41 24.55	22 15 5.9	1394092	23 10.2	227 27 5.9	0 4 59.8	6561060
15	16 47 56.13	22 33 51.8	1419985	23 12.8	230 20 14.9	0 26 14.8	6585830
16	16 54 30.32	22 51 33.8	1443829	23 15.5	233 11 33.3	0 47 12.2	6607946
17	17 1 7.02	23 8 9.9	1465685	23 18.2	236 1 15.4	1 7 50.7	6627408
18	17 7 46.15	23 23 38.3	1485614	23 20.9	238 49 35.2	1 28 9.1	6644237
19	17 14 27.63	23 37 57.5	1503668	23 23.7	241 36 46.1	1 48 6.3	6658440
20	17 21 11.37	23 51 5.6	1519886	23 26.6	244 23 1.2	2 7 41.2	6670018
21	17 27 57.32	24 3 1.2	1534312	23 29.4	247 8 33.4	2 26 52.8	6678984
22	17 34 45.37	24 13 42.8	1549777	23 32.3	249 53 35.3	2 45 40.0	6685343
23	17 41 35.47	24 23 8.8	1557912	23 35.2	252 38 19.3	3 4 1.8	6689100
24	17 48 27.54	24 31 18.1	1567137	23 38.2	255 22 57.7	3 21 57.1	6690255
25	17 55 21.48	24 38 9.1	1574669	23 41.2	258 7 42.8	3 39 24.8	6688811
26	18 2 17.22	24 43 40.3	1580522	23 44.2	260 52 46.5	3 56 23.5	6684765
27	18 9 14.67	24 47 50.8	1584700	23 47.3	263 38 21.5	4 12 52.0	6678117
28	18 16 13.75	24 50 38.9	1587206	23 50.3	266 24 39.8	4 28 48.9	6668862
29	18 23 14.35	24 52 3.8	1588034	23 53.4	269 11 54.0	4 44 12.5	6656991
30	18 30 16.36	24 52 4.1	1587177	23 56.6	272 0 16.5	4 59 1.1	6642498
31	18 37 19.72	24 50 38.6	1584618	23 59.7	274 50 0.4	5 13 13.0	6625378
32	18 44 24.27	24 47 46.2	1580337	* *	277 41 18.7	5 26 46.0	6605620

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>South.</i> <i>° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>South.</i> <i>° ' "</i>	<i>9</i>
Jan. 1	20 28 39.67	20 44 47.1	1.775993	1 47.0	337 49 59.3	3 21 46.9	8619321
2	20 33 49.98	20 27 6.2	1.764334	1 48.3	339 25 8.8	3 22 27.2	8618920
3	20 38 58.97	20 8 50.1	1.752541	1 49.5	341 0 19.4	3 22 58.3	8618499
4	20 44 6.63	19 49 59.3	1.740618	1 50.7	342 35 31.3	3 23 20.0	8618059
5	20 49 12.93	19 30 34.7	1.728561	1 51.8	344 10 44.4	3 23 32.5	8617599
6	20 54 17.85	19 10 36.9	1.716367	1 53.0	345 45 58.7	3 23 35.6	8617121
7	20 59 21.40	18 50 6.6	1.704038	1 54.1	347 21 14.3	3 23 29.3	8616625
8	21 4 23.56	18 29 4.7	1.691575	1 55.2	348 56 31.2	3 23 13.7	8616110
9	21 9 24.34	18 7 31.8	1.678976	1 56.2	350 31 49.5	3 22 48.7	8615578
10	21 14 23.73	17 45 28.8	1.666242	1 57.3	352 7 9.1	3 22 14.4	8615029
11	21 19 21.74	17 22 56.4	1.653370	1 58.3	353 42 30.0	3 21 30.7	8614463
12	21 24 18.38	16 59 55.2	1.640358	1 59.3	355 17 52.3	3 20 37.8	8613880
13	21 29 13.65	16 36 26.2	1.627207	2 0.3	356 53 15.9	3 19 35.6	8613282
14	21 34 7.57	16 12 30.1	1.613917	2 1.2	358 28 40.9	3 18 24.2	8612668
15	21 39 0.14	15 48 7.6	1.600484	2 2.2	0 4 7.3	3 17 3.6	8612039
16	21 43 51.39	15 23 19.6	1.586907	2 3.1	1 39 35.1	3 15 33.9	8611395
17	21 48 41.33	14 58 6.9	1.573183	2 4.0	3 15 4.3	3 13 55.1	8610737
18	21 53 29.97	14 32 30.2	1.559308	2 4.8	4 50 34.9	3 12 7.3	8610065
19	21 58 17.34	14 6 30.3	1.545281	2 5.7	6 26 7.0	3 10 10.6	8609381
20	22 3 34.5	13 40 8.0	1.531100	2 6.5	8 140 5.3	3 8 5.1	8608683
21	22 7 48.33	13 13 24.1	1.516764	2 7.3	9 37 15.5	3 5 50.9	8607974
22	22 12 32.01	12 46 19.4	1.502269	2 8.1	11 12 52.0	3 3 28.0	8607254
23	22 17 14.49	12 18 54.7	1.487614	2 8.9	12 48 29.9	3 0 56.5	8606522
24	22 21 55.80	11 51 10.8	1.472795	2 9.6	14 24 9.3	2 58 16.6	8605780
25	22 26 35.97	11 23 8.5	1.457811	2 10.3	15 59 50.3	2 55 28.4	8605028
26	22 31 15.03	10 54 48.7	1.442660	2 11.0	17 35 32.8	2 52 32.0	8604267
27	22 35 53.00	10 26 12.1	1.427339	2 11.7	19 11 16.7	2 49 27.5	8603497
28	22 40 29.91	9 57 19.6	1.411847	2 12.4	20 47 2.2	2 46 15.0	8602719
29	22 45 5.79	9 28 11.8	1.396181	2 13.0	22 22 49.3	2 42 54.8	8601933
30	22 49 40.67	8 58 49.5	1.380339	2 13.7	23 58 37.9	2 39 27.0	8601140
31	22 54 14.58	8 29 13.6	1.364321	2 14.3	25 34 28.0	2 35 51.6	8600341
Feb. 1	22 58 47.56	7 59 24.9	1.348127	2 14.9	27 10 19.7	2 32 8.8	8599536
2	23 3 19.63	7 29 24.1	1.331753	2 15.5	28 46 13.0	2 28 18.9	8598727
3	23 7 50.83	6 59 12.0	1.315197	2 16.1	30 22 7.9	2 24 22.0	8597912
4	23 12 21.20	6 28 49.4	1.298458	2 16.6	31 58 4.3	2 20 18.3	8597094
5	23 16 50.78	5 58 17.0	1.281535	2 17.2	33 34 2.4	2 16 7.9	8596273
6	23 21 19.59	5 27 35.7	1.264429	2 17.7	35 10 2.1	2 11 51.1	8595449
7	23 25 47.67	4 56 46.1	1.247140	2 18.3	36 46 3.4	2 7 28.0	8594623
8	23 30 15.07	4 25 49.0	1.229665	2 18.8	38 22 6.3	2 2 58.8	8593796
9	23 34 41.82	3 54 45.1	1.212001	2 19.3	39 58 10.9	1 58 23.8	8592968
10	23 39 7.98	3 23 35.3	1.194146	2 19.8	41 34 17.2	1 53 43.1	8592140
11	23 43 33.58	2 52 20.2	1.176099	2 20.3	43 10 25.1	1 48 57.0	8591313

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	h m s	South. ° ' "	°	h m	° ' "	South. ° ' "	9
Feb. 11	23 43 33.58	2 52 20.2	1176099	2 20.3	43 10 25.1	1 48 57.0	8591313
12	23 47 58.67	2 21 0.6	1157858	2 20.7	44 46 34.8	1 44 5.6	8590487
13	23 52 23.28	1 49 37.1	1139421	2 21.2	46 22 46.1	1 39 9.3	8589663
14	23 56 47.46	1 18 10.5	1120785	2 21.6	47 58 59.1	1 34 8.2	8588841
15	0 1 11.24	0 46 41.5	1101948	2 22.1	49 35 13.9	1 29 2.6	8588023
16	0 5 34.67	0 15 10.9	1082905	2 22.5	51 11 30.3	1 23 52.7	8587208
		North.					
17	0 9 57.80	0 16 20.7	1063650	2 23.0	52 47 48.5	1 18 38.7	8586398
18	0 14 20.66	0 47 52.6	1044183	2 23.4	54 24 8.5	1 13 20.9	8585593
19	0 18 43.28	1 19 23.9	1024500	2 23.9	56 0 30.2	1 7 59.5	8584793
20	0 23 5.70	1 50 54.0	1004599	2 24.3	57 36 53.6	1 2 34.7	8584000
21	0 27 27.96	2 22 22.1	0984476	2 24.7	59 13 18.9	0 57 7.0	8583214
22	0 31 50.09	2 53 47.6	0964126	2 25.1	60 49 45.9	0 51 36.4	8582436
23	0 36 12.16	3 25 9.7	0943543	2 25.6	62 26 14.6	0 46 3.2	8581666
24	0 40 34.18	3 56 27.7	0922727	2 26.0	64 2 45.2	0 40 27.8	8580905
25	0 44 56.17	4 27 40.8	0901678	2 26.4	65 39 17.6	0 34 50.3	8580154
26	0 49 18.18	4 58 48.3	0880389	2 26.8	67 15 51.7	0 29 11.1	8579412
27	0 53 40.24	5 29 49.5	0858856	2 27.3	68 52 27.7	0 23 30.3	8578682
28	0 58 2.38	6 0 43.7	0837076	2 27.7	70 29 5.4	0 17 48.4	8577962
29	1 2 24.64	6 31 30.2	0815049	2 28.1	72 5 45.0	0 12 5.5	8577255
Mar. 1	1 6 47.06	7 2 8.2	0792769	2 28.6	73 42 26.3	0 6 21.9	8576560
2	1 11 9.65	7 32 37.0	0770235	2 29.0	75 19 9.5	0 0 37.9	8575878
		North.					
3	1 15 32.44	8 2 55.9	0747444	2 29.4	76 55 54.5	0 5 6.3	8575210
4	1 19 55.47	8 33 4.1	0724395	2 29.9	78 32 41.3	0 10 50.3	8574556
5	1 24 18.76	9 3 1.0	0701084	2 30.3	80 9 29.8	0 16 33.9	8573916
6	1 28 42.34	9 32 45.9	0677510	2 30.8	81 46 20.2	0 22 16.9	8573291
7	1 33 6.23	10 2 18.0	0653670	2 31.2	83 23 12.3	0 27 58.8	8572682
8	1 37 30.48	10 31 36.6	0629563	2 31.7	85 0 6.2	0 33 39.5	8572090
9	1 41 55.10	11 0 41.0	0605186	2 32.2	86 37 1.8	0 39 18.7	8571513
10	1 46 20.12	11 29 30.6	0580537	2 32.6	88 13 59.2	0 44 56.1	8570954
11	1 50 45.58	11 58 4.7	0555614	2 33.1	89 50 58.3	0 50 31.5	8570413
12	1 55 11.50	12 26 22.6	0530414	2 33.6	91 27 59.1	0 56 4.6	8569890
13	1 59 37.91	12 54 23.6	0504931	2 34.1	93 5 1.6	1 1 35.0	8569385
14	2 4 4.84	13 22 7.2	0479162	2 34.6	94 42 5.7	1 7 2.6	8568899
15	2 8 32.29	13 49 32.5	0453102	2 35.1	96 19 11.5	1 12 27.0	8568432
16	2 13 0.29	14 16 38.9	0426749	2 35.7	97 56 18.9	1 17 48.0	8567985
17	2 17 28.85	14 43 25.6	0400096	2 36.2	99 33 27.9	1 23 5.4	8567557
18	2 21 57.99	15 9 52.1	0373139	2 36.7	101 10 38.4	1 28 18.8	8567150
19	2 26 27.72	15 35 57.8	0345873	2 37.3	102 47 50.4	1 33 28.0	8566764
20	2 30 58.05	16 1 41.8	0318295	2 37.9	104 25 3.9	1 38 32.8	8566399
21	2 35 28.99	16 27 3.7	0290399	2 38.4	106 2 18.9	1 43 33.0	8566055
22	2 40 0.53	16 52 2.7	0262177	2 39.0	107 39 35.3	1 48 28.2	8565733

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>North. ° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>North. ° ' "</i>	<i>9</i>
Mar. 22	2 40 0.53	16 52 2.7	.0262177	2 39.0	107 39 35.3	1 48 28.2	.8565733
23	2 44 32.70	17 16 38.1	.0233626	2 39.6	109 16 53.0	1 53 18.3	.8565433
24	2 49 5.48	17 40 49.3	.0204742	2 40.2	110 54 12.0	1 58 3.0	.8565155
25	2 53 38.88	18 4 35.6	.0175520	2 40.8	112 31 32.3	2 2 42.0	.8564899
26	2 58 12.88	18 27 56.5	.0145954	2 41.4	114 8 53.8	2 7 15.1	.8564666
27	3 2 47.49	18 50 51.3	.0116039	2 42.1	115 46 16.5	2 11 42.2	.8564455
28	3 7 22.69	19 13 19.5	.0085770	2 42.7	117 23 40.3	2 16 3.0	.8564268
29	3 11 58.46	19 35 20.2	.0055144	2 43.4	119 1 5.2	2 20 17.2	.8564104
30	3 16 34.78	19 56 53.1	.0024155	2 44.0	120 38 31.0	2 24 24.7	.8563963
			9				
31	3 21 11.64	20 17 57.3	.9992800	2 44.7	122 15 57.8	2 28 25.3	.8563845
Apr. 1	3 25 49.00	20 38 32.4	.9961075	2 45.4	123 53 25.4	2 32 18.7	.8563751
2	3 30 26.85	20 58 37.8	.9928976	2 46.1	125 30 53.8	2 36 4.8	.8563680
3	3 35 5.16	21 18 13.0	.9896496	2 46.8	127 8 23.0	2 39 43.4	.8563633
4	3 39 43.90	21 37 17.2	.9863633	2 47.5	128 45 52.8	2 43 14.2	.8563609
5	3 44 23.04	21 55 50.2	.9830385	2 48.2	130 23 23.2	2 46 37.2	.8563609
6	3 49 2.54	22 13 51.4	.9796748	2 48.9	132 0 54.2	2 49 52.2	.8563632
7	3 53 42.38	22 31 20.4	.9762721	2 49.7	133 38 25.6	2 52 59.1	.8563679
8	3 58 22.52	22 48 16.6	.9728299	2 50.4	135 15 57.3	2 55 57.5	.8563750
9	4 3 2.93	23 4 39.7	.9693478	2 51.1	136 53 29.3	2 58 47.5	.8563844
10	4 7 43.57	23 20 29.1	.9658252	2 51.9	138 31 1.5	3 1 28.9	.8563962
11	4 12 24.39	23 35 44.7	.9622615	2 52.6	140 8 33.9	3 4 1.5	.8564103
12	4 17 5.35	23 50 25.8	.9586562	2 53.3	141 46 6.3	3 6 25.2	.8564268
13	4 21 46.38	24 4 32.3	.9550089	2 54.1	143 23 38.6	3 8 39.9	.8564456
14	4 26 27.46	24 18 3.8	.9513188	2 54.8	145 1 10.9	3 10 45.5	.8564666
15	4 31 8.51	24 31 0.1	.9475854	2 55.5	146 38 42.9	3 12 41.9	.8564899
16	4 35 49.47	24 43 20.8	.9438079	2 56.3	148 16 14.6	3 14 29.0	.8565155
17	4 40 30.29	24 55 5.6	.9399857	2 57.0	149 53 45.9	3 16 6.7	.8565434
18	4 45 10.89	25 6 14.4	.9361181	2 57.8	151 31 16.7	3 17 35.0	.8565734
19	4 49 51.21	25 16 46.9	.9322043	2 58.5	153 8 47.0	3 18 53.7	.8566056
20	4 54 31.18	25 26 43.0	.9282437	2 59.2	154 46 16.6	3 20 2.8	.8566400
21	4 59 10.72	25 36 2.7	.9242356	2 59.9	156 23 45.5	3 21 2.3	.8566765
22	5 3 49.76	25 44 45.8	.9201793	3 0.6	158 1 13.6	3 21 52.1	.8567151
23	5 8 28.22	25 52 52.1	.9160740	3 1.3	159 38 40.7	3 22 32.2	.8567558
24	5 13 6.01	26 0 21.6	.9119190	3 2.0	161 16 6.9	3 23 2.5	.8567986
25	5 17 43.04	26 7 14.4	.9077135	3 2.7	162 53 31.9	3 23 23.1	.8568433
26	5 22 19.21	26 13 30.4	.9034569	3 3.3	164 30 55.8	3 23 33.9	.8568900
27	5 26 54.44	26 19 9.7	.8991483	3 4.0	166 8 18.4	3 23 34.9	.8569387
28	5 31 28.61	26 24 12.4	.8947871	3 4.6	167 45 39.7	3 23 26.2	.8569892
29	5 36 1.63	26 28 38.6	.8903725	3 5.2	169 22 59.5	3 23 7.7	.8570416
30	5 40 33.39	26 32 28.4	.8859042	3 5.8	171 0 17.8	3 22 39.5	.8570958
May 1	5 45 3.80	26 35 41.8	.8813815	3 6.4	172 37 34.6	3 22 1.5	.8571517
2	5 49 32.75	26 38 19.2	.8768041	3 6.9	174 14 49.6	3 21 13.9	.8572094

MEAN TIME.

Month and Day.		Geocentric.				Heliocentric.			
		Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.	
		Noon.	Noon.	Noon.		Noon.	Noon.	Noon.	
		North.		9		North.		9	
May	2	h m s 5 49 32.75	° ' " 26 38 19.2	.8768041	h m 3 6.9	° ' " 174 14 49.6	° ' " 3 21 13.9	.8572094	
	3	5 54 0.14	26 40 20.9	.8721713	3 7.4	175 52 2.9	3 20 16.7	.8572687	
	4	5 58 25.87	26 41 47.1	.8674829	3 7.9	177 29 14.4	3 19 9.9	.8573297	
	5	6 2 49.84	26 42 38.1	.8627383	3 8.4	179 6 24.0	3 17 53.6	.8573922	
	6	6 7 11.94	26 42 54.2	.8579371	3 8.8	180 43 31.6	3 16 27.8	.8574563	
	7	6 11 32.08	26 42 35.7	.8530789	3 9.2	182 20 37.2	3 14 52.7	.8575218	
	8	6 15 50.15	26 41 43.3	.8481632	3 9.5	183 57 40.7	3 13 8.3	.8575888	
	9	6 20 6.04	26 40 17.2	.8431893	3 9.8	185 34 42.1	3 11 14.8	.8576571	
	10	6 24 19.64	26 38 18.0	.8381567	3 10.1	187 11 41.3	3 9 12.2	.8577267	
	11	6 28 30.87	26 35 46.1	.8330648	3 10.4	188 48 38.2	3 7 0.5	.8577976	
	12	6 32 39.60	26 32 42.1	.8279131	3 10.6	190 25 32.7	3 4 40.0	.8578696	
	13	6 36 45.72	26 29 6.6	.8227009	3 10.7	192 2 24.9	3 2 10.8	.8579428	
	14	6 40 49.12	26 25 0.1	.8174276	3 10.8	193 39 14.6	2 59 33.0	.8580171	
	15	6 44 49.70	26 20 23.2	.8120923	3 10.9	195 16 1.8	2 56 46.7	.8580924	
	16	6 48 47.33	26 15 16.8	.8066948	3 10.9	196 52 46.5	2 53 52.1	.8581686	
	17	6 52 41.91	26 9 41.3	.8012347	3 10.8	198 29 28.7	2 50 49.3	.8582457	
	18	6 56 33.32	26 3 37.7	.7957111	3 10.7	200 6 8.3	2 47 38.5	.8583237	
	19	7 0 21.44	25 57 6.5	.7901233	3 10.6	201 42 45.2	2 44 19.8	.8584024	
	20	7 4 6.15	25 50 8.5	.7844708	3 10.4	203 19 19.5	2 40 53.5	.8584819	
	21	7 7 47.33	25 42 44.5	.7787535	3 10.1	204 55 51.2	2 37 19.6	.8585619	
	22	7 11 24.82	25 34 55.3	.7729709	3 9.8	206 32 20.1	2 33 38.3	.8586426	
	23	7 14 58.51	25 26 41.7	.7671224	3 9.4	208 8 46.3	2 29 49.9	.8587238	
	24	7 18 28.24	25 18 4.8	.7612078	3 8.9	209 45 9.8	2 25 54.5	.8588054	
	25	7 21 53.87	25 9 5.3	.7552266	3 8.4	211 21 30.6	2 21 52.3	.8588875	
	26	7 25 15.27	24 59 44.2	.7491789	3 7.8	212 57 48.6	2 17 43.5	.8589698	
	27	7 28 32.28	24 50 2.4	.7430647	3 7.2	214 34 3.8	2 13 28.4	.8590524	
	28	7 31 44.72	24 40 1.0	.7368845	3 6.4	216 10 16.2	2 9 7.1	.8591352	
	29	7 34 52.44	24 29 40.8	.7306390	3 5.6	217 46 25.9	2 4 39.9	.8592181	
	30	7 37 55.27	24 19 2.8	.7243290	3 4.7	219 22 32.9	2 0 6.9	.8593011	
	31	7 40 53.07	24 8 7.9	.7179552	3 3.7	220 58 37.1	1 55 28.4	.8593841	
June	1	7 43 45.67	23 56 57.3	.7115190	3 2.6	222 34 38.6	1 50 44.5	.8594670	
	2	7 46 32.91	23 45 32.1	.7050221	3 1.5	224 10 37.4	1 45 55.6	.8595498	
	3	7 49 14.61	23 33 53.3	.6984661	3 0.2	225 46 33.5	1 41 1.9	.8596324	
	4	7 51 50.60	23 22 1.8	.6918528	2 58.9	227 22 26.9	1 36 3.6	.8597147	
	5	7 54 20.70	23 9 58.9	.6851843	2 57.4	228 58 17.6	1 31 0.9	.8597967	
	6	7 56 44.72	22 57 45.5	.6784628	2 55.8	230 34 5.8	1 25 54.1	.8598783	
	7	7 59 2.49	22 45 23.0	.6716912	2 54.2	232 9 51.4	1 20 43.4	.8599594	
	8	8 1 13.83	22 32 52.2	.6648722	2 52.4	233 45 34.4	1 15 29.0	.8600400	
	9	8 3 18.55	22 20 14.4	.6580090	2 50.6	235 21 14.9	1 10 11.3	.8601201	
	10	8 5 16.45	22 7 30.7	.6511056	2 48.6	236 56 53.0	1 4 50.4	.8601995	
	11	8 7 7.32	21 54 42.4	.6441661	2 46.5	238 32 28.6	0 59 26.7	.8602782	
	12	8 8 50.96	21 41 50.5	.6371952	2 44.2	240 8 1.8	0 54 0.3	.8603561	

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div>North.</div> <div>9</div> </div>							
June 12	h m s 8 8 50.96	° ' " 21 41 50.5	9 .6371952	h m 2 44.2	° ' " 240 8 1.8	North. ° ' " 0 54 0.3	9 .8603561
13	8 10 27.16	21 28 56.3	.6301980	2 41.9	241 43 32.8	0 48 31.5	.8604332
14	8 11 55.74	21 16 0.8	.6231798	2 39.4	243 19 1.4	0 43 0.6	.8605095
15	8 13 16.49	21 3 5.4	.6161471	2 36.8	244 54 27.8	0 37 27.8	.8605848
16	8 14 29.19	20 50 11.1	.6091071	2 34.1	246 29 52.0	0 31 53.4	.8606591
17	8 15 33.62	20 37 19.2	.6020666	2 31.2	248 5 14.1	0 26 17.6	.8607324
18	8 16 29.58	20 24 30.9	.5950337	2 28.2	249 40 34.2	0 20 40.8	.8608046
19	8 17 16.86	20 11 47.4	.5880177	2 25.0	251 15 52.3	0 15 3.1	.8608756
20	8 17 55.25	19 59 9.7	.5810289	2 21.7	252 51 8.4	0 9 24.8	.8609454
21	8 18 24.55	19 46 39.3	.5740774	2 18.2	254 26 22.6	0 3 46.2	.8610139
<div> <div>South.</div> <div>9</div> </div>							
22	8 18 44.54	19 34 17.3	.5671753	2 14.6	256 1 35.1	0 1 52.5	.8610811
23	8 18 55.04	19 22 4.7	.5603350	2 10.8	257 36 45.8	0 7 31.0	.8611469
24	8 18 55.89	19 10 2.7	.5535703	2 6.9	259 11 54.8	0 13 9.1	.8612113
25	8 18 46.92	18 58 12.6	.5468967	2 2.8	260 47 2.2	0 18 46.5	.8612743
26	8 18 28.02	18 46 35.4	.5403307	1 58.5	262 22 8.1	0 24 22.9	.8613357
27	8 17 59.10	18 35 12.1	.5338901	1 54.1	263 57 12.5	0 29 58.1	.8613956
28	8 17 20.12	18 24 3.7	.5275933	1 49.5	265 32 15.5	0 35 31.8	.8614539
29	8 16 31.08	18 13 11.1	.5214600	1 44.8	267 7 17.2	0 41 3.8	.8615105
30	8 15 32.03	18 2 35.3	.5155105	1 39.9	268 42 17.7	0 46 33.8	.8615655
July 1	8 14 23.06	17 52 17.2	.5097659	1 34.8	270 17 17.0	0 52 1.6	.8616187
2	8 13 4.33	17 42 17.3	.5042477	1 29.5	271 52 15.2	0 57 27.0	.8616702
3	8 11 36.08	17 32 36.5	.4989786	1 24.1	273 27 12.4	1 2 49.6	.8617198
4	8 9 58.58	17 23 15.6	.4939809	1 18.6	275 2 8.6	1 8 9.3	.8617676
5	8 8 12.18	17 14 15.1	.4892768	1 12.9	276 37 4.0	1 13 25.8	.8618136
6	8 6 17.32	17 5 35.7	.4848879	1 7.0	278 11 58.5	1 18 38.9	.8618576
7	8 4 14.50	16 57 17.9	.4808355	1 1.0	279 46 52.3	1 23 48.3	.8618997
8	8 2 4.30	16 49 22.2	.4771408	0 55.0	281 21 45.4	1 28 53.8	.8619398
9	7 59 47.39	16 41 48.9	.4738230	0 48.8	282 56 38.0	1 33 55.2	.8619779
10	7 57 24.48	16 34 38.5	.4708999	0 42.5	284 31 30.0	1 38 52.3	.8620139
11	7 54 56.35	16 27 51.3	.4683875	0 36.1	286 6 21.6	1 43 44.8	.8620479
12	7 52 23.85	16 21 27.4	.4662998	0 29.6	287 41 12.8	1 48 32.6	.8620798
13	7 49 47.90	16 15 27.4	.4646484	0 23.1	289 16 3.7	1 53 15.4	.8621096
14	7 47 9.41	16 9 51.7	.4634422	0 16.6	290 50 54.3	1 57 52.9	.8621373
15	7 44 29.35	16 4 40.4	.4626876	0 10.0	292 25 44.8	2 2 25.0	.8621628
16	7 41 48.70	15 59 53.5	.4623879	{ 3.1.1 }	294 0 35.1	2 6 51.5	.8621861
17	7 39 8.41	15 55 31.2	.4625434	23 50.2	295 35 25.4	2 11 12.2	.8622073
18	7 36 29.47	15 51 33.6	.4631510	23 43.7	297 10 15.7	2 15 26.9	.8622263
19	7 33 52.80	15 48 0.9	.4642064	23 37.2	298 45 6.1	2 19 35.4	.8622430
20	7 31 19.31	15 44 53.0	.4657019	23 30.8	300 19 56.6	2 23 37.5	.8622575
21	7 28 49.90	15 42 10.0	.4676279	23 24.5	301 54 47.4	2 27 33.1	.8622698
22	7 26 25.39	15 39 51.7	.4699718	23 18.3	303 29 38.4	2 31 21.9	.8622798
23	7 24 6.56	15 37 57.6	.4727193	23 12.2	305 4 29.7	2 35 3.8	.8622876

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.			
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.	
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.	
	<i>h m s</i>	<i>North.</i> <i>° ' "</i>	9	<i>h m</i>	<i>° ' "</i>	<i>South.</i> <i>° ' "</i>	9	
July	23	7 24 6.56	15 37 57.6	.4727193	23 12.2	305 4 29.7	2 35 3.8	.8622876
	24	7 21 54.16	15 36 27.6	.4758536	23 6.2	306 39 21.3	2 38 38.6	.8622931
	25	7 19 48.84	15 35 21.0	.4793577	23 0.3	308 14 13.4	2 42 6.1	.8622964
	26	7 17 51.21	15 34 37.4	.4832129	22 54.5	309 49 6.0	2 45 26.3	.8622974
	27	7 16 1.82	15 34 16.1	.4873989	22 48.9	311 23 59.1	2 48 38.9	.8622961
	28	7 14 21.13	15 34 16.5	.4918948	22 43.5	312 58 52.8	2 51 43.8	.8622925
	29	7 12 49.54	15 34 37.6	.4966791	22 38.2	314 33 47.1	2 54 40.9	.8622867
	30	7 11 27.34	15 35 18.5	.5017300	22 33.0	316 8 42.0	2 57 30.0	.8622786
	31	7 10 14.81	15 36 18.0	.5070261	22 28.0	317 43 37.7	3 0 11.1	.8622683
	Aug.	1	7 9 12.14	15 37 35.3	.5125461	22 23.2	319 18 34.2	3 2 43.9	.8622557
2		7 8 19.45	15 39 9.1	.5182688	22 18.6	320 53 31.4	3 5 8.3	.8622409
3		7 7 36.81	15 40 58.1	.5241733	22 14.1	322 28 29.5	3 7 24.3	.8622239
4		7 7 4.26	15 43 0.8	.5302402	22 9.8	324 3 28.4	3 9 31.8	.8622046
5		7 6 41.78	15 45 16.1	.5364504	22 5.6	325 38 28.2	3 11 30.6	.8621831
6		7 6 29.28	15 47 42.4	.5427858	22 1.6	327 13 29.0	3 13 20.7	.8621595
7		7 6 26.68	15 50 18.4	.5492290	21 57.8	328 48 30.7	3 15 1.9	.8621337
8		7 6 33.84	15 53 2.5	.5557638	21 54.1	330 23 33.5	3 16 34.2	.8621057
9		7 6 50.61	15 55 53.1	.5623749	21 50.6	331 58 37.3	3 17 57.6	.8620756
10		7 7 16.82	15 58 48.9	.5690482	21 47.3	333 33 42.2	3 19 11.9	.8620434
11	7 7 52.25	16 1 48.4	.5757705	21 44.1	335 8 48.1	3 20 17.1	.8620091	
12	7 8 36.67	16 4 50.0	.5825297	21 41.0	336 43 55.2	3 21 13.1	.8619727	
13	7 9 29.86	16 7 52.4	.5893146	21 38.1	338 19 3.4	3 21 59.9	.8619343	
14	7 10 31.57	16 10 54.1	.5961151	21 35.3	339 54 12.8	3 22 37.4	.8618940	
15	7 11 41.54	16 13 53.7	.6029222	21 32.6	341 29 23.4	3 23 5.6	.8618516	
16	7 12 59.51	16 16 49.8	.6097277	21 30.1	343 4 35.2	3 23 24.5	.8618073	
17	7 14 25.20	16 19 41.1	.6165239	21 27.7	344 39 48.3	3 23 34.1	.8617611	
18	7 15 58.36	16 22 26.1	.6233042	21 25.4	346 15 2.6	3 23 34.4	.8617130	
19	7 17 38.75	16 25 3.8	.6300632	21 23.3	347 50 18.2	3 23 25.3	.8616631	
20	7 19 26.11	16 27 32.8	.6367955	21 21.2	349 25 35.0	3 23 6.8	.8616114	
21	7 21 20.19	16 29 51.8	.6434966	21 19.3	351 0 53.2	3 22 39.0	.8615579	
22	7 23 20.77	16 31 59.7	.6501623	21 17.4	352 36 12.7	3 22 1.9	.8615027	
23	7 25 27.62	16 33 55.3	.6567886	21 15.7	354 11 33.5	3 21 15.4	.8614458	
24	7 27 40.52	16 35 37.7	.6633728	21 14.1	355 46 55.6	3 20 19.7	.8613873	
25	7 29 59.26	16 37 5.7	.6699126	21 12.5	357 22 19.2	3 19 14.7	.8613272	
26	7 32 23.62	16 38 18.2	.6764050	21 11.1	358 57 44.1	3 18 0.5	.8612655	
27	7 34 53.40	16 39 14.2	.6828475	21 9.7	0 33 10.4	3 16 37.2	.8612023	
28	7 37 28.39	16 39 52.8	.6892385	21 8.4	2 8 38.1	3 15 4.7	.8611377	
29	7 40 8.40	16 40 13.3	.6955761	21 7.2	3 44 7.2	3 13 23.2	.8610717	
30	7 42 53.25	16 40 14.5	.7018587	21 6.1	5 19 37.8	3 11 32.8	.8610043	
31	7 45 42.74	16 39 55.7	.7080852	21 5.0	6 55 9.8	3 9 33.5	.8609356	
Sept.	1	7 48 36.70	16 39 16.1	.7142543	21 4.1	8 30 43.3	3 7 25.3	.8608656
	2	7 51 34.96	16 38 14.9	.7203650	21 3.2	10 6 18.2	3 5 8.5	.8607944

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
Sept. 2	North.		9	South.		9	
	h m s	° ' "		h m	° ' "		
	7 51 34.96	16 38 14.9	.7203650	21 3.2	10 6 18.2	3 5 8.5	.8607944
	3 7 54 37.33	16 36 51.5	.7264164	21 2.3	11 41 54.5	3 2 43.0	.8607221
	4 7 57 43.66	16 35 5.1	.7324076	21 1.5	13 17 32.4	3 0 9.0	.8606487
	5 8 0 53.79	16 32 55.2	.7383385	21 0.8	14 53 11.7	2 57 26.6	.8605743
	6 8 4 7.56	16 30 21.0	.7442084	21 0.1	16 28 52.6	2 54 35.9	.8604989
	7 8 7 24.82	16 27 22.2	.7500169	20 59.5	18 4 34.9	2 51 37.0	.8604225
	8 8 10 45.41	16 23 58.2	.7557635	20 59.0	19 40 18.8	2 48 30.1	.8603453
	9 8 14 9.18	16 20 8.3	.7614483	20 58.5	21 16 4.2	2 45 15.3	.8602673
	10 8 17 36.00	16 15 52.2	.7670711	20 58.0	22 51 51.1	2 41 52.8	.8601885
	11 8 21 5.72	16 11 9.7	.7726323	20 57.6	24 27 39.6	2 38 22.7	.8601091
	12 8 24 38.19	16 6 0.4	.7781319	20 57.2	26 3 29.7	2 34 45.1	.8600290
	13 8 28 13.27	16 0 24.1	.7835703	20 56.9	27 39 21.3	2 31 0.2	.8599484
	14 8 31 50.84	15 54 20.3	.7889479	20 56.6	29 15 14.6	2 27 8.2	.8598672
	15 8 35 30.76	15 47 49.0	.7942653	20 56.4	30 51 9.4	2 23 9.2	.8597856
	16 8 39 12.92	15 40 49.9	.7995229	20 56.2	32 27 5.8	2 19 3.5	.8597036
	17 8 42 57.21	15 33 22.8	.8047214	20 56.0	34 3 3.9	2 14 51.2	.8596213
	18 8 46 43.51	15 25 27.6	.8098614	20 55.9	35 39 3.5	2 10 32.5	.8595388
	19 8 50 31.73	15 17 4.1	.8149439	20 55.8	37 15 4.8	2 6 7.6	.8594560
	20 8 54 21.76	15 8 12.5	.8199699	20 55.7	38 51 7.8	2 1 36.7	.8593731
	21 8 58 13.50	14 58 52.7	.8249399	20 55.6	40 27 12.4	1 56 59.9	.8592902
	22 9 2 6.88	14 49 4.3	.8298545	20 55.6	42 3 18.6	1 52 17.6	.8592073
	23 9 6 1.80	14 38 47.6	.8347146	20 55.6	43 39 26.6	1 47 30.0	.8591244
	24 9 9 58.18	14 28 2.7	.8395212	20 55.6	45 15 36.2	1 42 37.1	.8590417
	25 9 13 55.94	14 16 49.7	.8442750	20 55.6	46 51 47.5	1 37 39.4	.8589592
	26 9 17 55.01	14 5 8.4	.8489767	20 55.7	48 28 0.6	1 32 37.0	.8588770
	27 9 21 55.34	13 52 59.1	.8536268	20 55.8	50 4 15.3	1 27 30.1	.8587951
	28 9 25 56.83	13 40 22.0	.8582260	20 55.9	51 40 31.8	1 22 19.0	.8587136
	29 9 29 59.43	13 27 17.2	.8627748	20 56.0	53 16 50.0	1 17 3.8	.8586325
	30 9 34 3.09	13 13 44.7	.8672741	20 56.1	54 53 10.0	1 11 44.9	.8585520
Oct. 1	9 38 7.74	12 59 44.9	.8717241	20 56.3	56 29 31.8	1 6 22.5	.8584720
	2 9 42 13.32	12 45 17.8	.8761252	20 56.4	58 5 55.3	1 0 56.9	.8583927
	3 9 46 19.77	12 30 24.0	.8804781	20 56.6	59 42 20.6	0 55 28.3	.8583140
	4 9 50 27.06	12 15 3.6	.8847834	20 56.8	61 18 47.7	0 49 56.9	.8582362
	5 9 54 35.15	11 59 17.1	.8890414	20 57.0	62 55 16.6	0 44 23.1	.8581591
	6 9 58 43.97	11 43 4.4	.8932526	20 57.2	64 31 47.3	0 38 47.0	.8580830
	7 10 2 53.49	11 26 26.1	.8974174	20 57.4	66 8 19.7	0 33 9.0	.8580078
	8 10 7 3.65	11 9 22.6	.9015363	20 57.7	67 44 54.0	0 27 29.3	.8579337
	9 10 11 14.41	10 51 54.3	.9056098	20 57.9	69 21 30.1	0 21 48.2	.8578606
	10 10 15 25.72	10 34 1.6	.9096384	20 58.2	70 58 8.0	0 16 5.9	.8577886
	11 10 19 37.57	10 15 44.9	.9136227	20 58.5	72 34 47.7	0 10 22.8	.8577179
	12 10 23 49.91	9 57 4.7	.9175635	20 58.7	74 11 29.3	0 4 39.0	.8576484
	13 10 28 2.70	9 38 1.5	.9214610	20 59.0	North.		.8575802

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>North.</i>	<i>9</i>	<i>h m</i>	<i>North.</i>	<i>9</i>	
Oct. 13	10 28 2.70	9 38 1.5	.9214610	20 59.0	75 48 12.7	0 1 5.0	.8575802
14	10 32 15.91	9 18 35.8	.9253155	20 59.3	77 24 57.8	0 6 49.1	.8575134
15	10 36 29.52	8 58 48.2	.9291278	20 59.6	79 1 44.8	0 12 33.1	.8574480
16	10 40 43.50	8 38 39.0	.9328987	20 59.9	80 38 33.6	0 18 16.5	.8573840
17	10 44 57.81	8 18 8.9	.9366288	21 0.2	82 15 24.2	0 23 59.1	.8573216
18	10 49 12.46	7 57 18.4	.9403186	21 0.5	83 52 16.5	0 29 40.7	.8572608
19	10 53 27.43	7 36 8.0	.9439688	21 0.8	85 29 10.6	0 35 21.0	.8572016
20	10 57 42.70	7 14 38.3	.9475806	21 1.1	87 6 6.5	0 40 59.6	.8571440
21	11 1 58.26	6 52 49.8	.9511543	21 1.4	88 43 4.2	0 46 36.4	.8570882
22	11 6 14.11	6 30 43.2	.9546904	21 1.7	90 20 3.6	0 52 11.1	.8570342
23	11 10 30.23	6 8 19.0	.9581894	21 2.1	91 57 4.7	0 57 43.3	.8569820
24	11 14 46.65	5 45 37.9	.9616521	21 2.4	93 34 7.5	1 3 12.9	.8569316
25	11 19 3.34	5 22 40.4	.9650789	21 2.8	95 11 11.9	1 8 39.5	.8568831
26	11 23 20.32	4 59 27.1	.9684703	21 3.1	96 48 18.0	1 14 3.0	.8568365
27	11 27 37.58	4 35 58.6	.9718268	21 3.5	98 25 25.7	1 19 22.9	.8567920
28	11 31 55.14	4 12 15.5	.9751489	21 3.8	100 2 35.0	1 24 39.1	.8567494
29	11 36 12.99	3 48 18.4	.9784370	21 4.2	101 39 45.8	1 29 51.3	.8567088
30	11 40 31.17	3 24 7.9	.9816915	21 4.5	103 16 58.2	1 34 59.3	.8566703
31	11 44 49.66	2 59 44.7	.9849126	21 4.9	104 54 12.0	1 40 2.7	.8566339
Nov. 1	11 49 8.49	2 35 9.4	.9881006	21 5.3	106 31 27.3	1 45 1.4	.8565997
2	11 53 27.66	2 10 22.8	.9912558	21 5.6	108 8 44.0	1 49 55.1	.8565676
3	11 57 47.18	1 45 25.3	.9943788	21 6.0	109 46 2.1	1 54 43.6	.8565377
4	12 2 7.10	1 20 17.9	.9974696	21 6.4	111 23 21.5	1 59 26.5	.8565100
5	12 6 27.40	0 55 1.0	.0005284	21 6.8	113 0 42.1	2 4 3.8	.8564846
6	12 10 48.09	0 29 35.5	.0035556	21 7.2	114 38 4.0	2 8 35.2	.8564614
7	12 15 9.20	0 4 1.9	.0065515	21 7.7	116 15 27.0	2 13 0.4	.8564405
8	12 19 30.73	0 21 38.9	.0095164	21 8.1	117 52 51.2	2 17 19.2	.8564218
9	12 23 52.71	0 47 26.3	.0124505	21 8.5	119 30 16.4	2 21 31.5	.8564055
10	12 28 15.14	1 13 19.5	.0153539	21 9.0	121 7 42.6	2 25 36.9	.8563915
11	12 32 38.04	1 39 17.8	.0182270	21 9.4	122 45 9.7	2 29 35.4	.8563799
12	12 37 1.43	2 5 20.4	.0210702	21 9.9	124 22 37.6	2 33 26.6	.8563706
13	12 41 25.33	2 31 26.6	.0238840	21 10.3	126 0 6.4	2 37 10.5	.8563636
14	12 45 49.76	2 57 35.6	.0266685	21 10.8	127 37 35.9	2 40 46.8	.8563591
15	12 50 14.74	3 23 46.7	.0294243	21 11.3	129 15 6.1	2 44 15.4	.8563569
16	12 54 40.28	3 49 59.1	.0321517	21 11.8	130 52 36.8	2 47 36.0	.8563570
17	12 59 6.41	4 16 12.1	.0348511	21 12.3	132 30 8.1	2 50 48.6	.8563595
18	13 3 33.15	4 42 24.9	.0375221	21 12.8	134 7 39.8	2 53 53.0	.8563644
19	13 8 0.52	5 8 36.7	.0401681	21 13.3	135 45 11.8	2 56 48.9	.8563716
20	13 12 28.55	5 34 46.9	.0427864	21 13.8	137 22 44.1	2 59 36.3	.8563812
21	13 16 57.27	6 0 54.7	.0453786	21 14.4	139 0 16.6	3 2 15.1	.8563932
22	13 21 26.71	6 26 59.3	.0479448	21 14.9	140 37 49.3	3 4 45.0	.8564075

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	h m	South. ° ' "	°	h m	° ' "	North. ° ' "	9
Nov. 22	13 21 26.71	6 26 59.3	0.479448	21 14.9	140 37 49.3	3 44 5.0	8.564075
23	13 25 56.89	6 52 59.9	0.504855	21 15.5	142 15 22.0	3 7 6.0	8.564241
24	13 30 27.82	7 18 55.6	0.530009	21 16.1	143 52 54.6	3 9 18.1	8.564430
25	13 34 59.55	7 44 45.9	0.554914	21 16.7	145 30 27.0	3 11 21.0	8.564642
26	13 39 32.10	8 10 30.0	0.579573	21 17.3	147 7 59.2	3 13 14.6	8.564877
27	13 44 5.50	8 36 7.1	0.603987	21 17.9	148 45 31.1	3 14 58.9	8.565135
28	13 48 39.78	9 1 36.4	0.628160	21 18.6	150 23 2.6	3 16 33.8	8.565414
29	13 53 14.06	9 26 57.1	0.652095	21 19.2	152 0 33.7	3 17 59.3	8.565716
30	13 57 51.07	9 52 8.4	0.675793	21 19.9	153 38 4.1	3 19 15.1	8.566040
Dec. 1	14 2 28.14	10 17 9.7	0.699258	21 20.6	155 15 33.9	3 20 21.4	8.566385
2	14 7 6.19	10 42 0.0	0.722488	21 21.3	156 53 2.9	3 21 18.0	8.566752
3	14 11 45.25	11 6 38.6	0.745486	21 22.0	158 30 31.1	3 22 4.9	8.567140
4	14 16 25.33	11 31 4.7	0.768254	21 22.8	160 7 58.3	3 22 42.1	8.567549
5	14 21 6.45	11 55 17.6	0.790796	21 23.6	161 45 24.5	3 23 9.6	8.567978
6	14 25 48.63	12 19 16.3	0.813110	21 24.3	163 22 49.7	3 23 27.2	8.568427
7	14 30 31.90	12 43 0.1	0.835196	21 25.1	165 0 13.6	3 23 35.1	8.568896
8	14 35 16.27	13 6 28.0	0.857056	21 25.9	166 37 36.3	3 23 33.2	8.569384
9	14 40 1.76	13 29 39.6	0.878692	21 26.7	168 14 57.6	3 23 21.5	8.569891
10	14 44 48.36	13 52 33.7	0.900106	21 27.6	169 52 17.5	3 23 0.1	8.570417
11	14 49 36.11	14 15 9.6	0.921300	21 28.5	171 29 35.8	3 22 28.9	8.570961
12	14 54 24.99	14 37 26.5	0.942276	21 29.4	173 6 52.5	3 21 48.1	8.571522
13	14 59 15.04	14 59 23.7	0.963036	21 30.3	174 44 7.6	3 20 57.6	8.572100
14	15 4 6.25	15 21 0.2	0.983584	21 31.2	176 21 20.9	3 19 57.5	8.572695
15	15 8 58.64	15 42 15.3	1.003921	21 32.1	177 58 32.4	3 18 47.8	8.573306
16	15 13 52.20	16 3 8.2	1.024051	21 33.1	179 35 41.9	3 17 28.7	8.573933
17	15 18 46.93	16 23 38.0	1.043978	21 34.1	181 12 49.5	3 16 0.1	8.574575
18	15 23 42.84	16 43 43.9	1.063702	21 35.1	182 49 55.1	3 14 22.2	8.575231
19	15 28 39.94	17 3 25.3	1.083229	21 36.1	184 26 58.5	3 12 35.1	8.575902
20	15 33 38.22	17 22 41.4	1.102560	21 37.2	186 3 59.8	3 10 38.8	8.576586
21	15 38 37.68	17 41 31.2	1.121696	21 38.3	187 40 58.8	3 8 33.4	8.577283
22	15 43 38.32	17 59 54.2	1.140641	21 39.3	189 17 55.6	3 6 19.1	8.577993
23	15 48 40.14	18 17 49.6	1.159400	21 40.4	190 54 50.0	3 3 56.0	8.578715
24	15 53 43.12	18 35 16.6	1.177972	21 41.6	192 31 42.0	3 1 24.2	8.579448
25	15 58 47.27	18 52 14.5	1.196359	21 42.7	194 8 31.6	2 58 43.8	8.580192
26	16 3 52.56	19 8 42.6	1.214563	21 43.9	195 45 18.6	2 55 55.0	8.580946
27	16 8 59.00	19 24 40.4	1.232589	21 45.1	197 22 3.2	2 52 57.9	8.581709
28	16 14 6.56	19 40 7.0	1.250436	21 46.3	198 58 45.2	2 49 52.7	8.582481
29	16 19 15.23	19 55 1.6	1.268106	21 47.5	200 35 24.6	2 46 39.5	8.583262
30	16 24 24.98	20 9 23.6	1.285602	21 48.7	202 12 1.4	2 43 18.4	8.584050
31	16 29 35.81	20 23 12.6	1.302925	21 50.0	203 48 35.5	2 39 49.8	8.584846
32	16 34 47.69	20 36 27.8	1.320076	21 51.3	205 25 6.9	2 36 13.6	8.585648

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<div>h m s</div>	<div>South. ° ' "</div>	<div>°</div>	<div>h m</div>	<div>° ' "</div>	<div>South. ° ' "</div>	<div>°</div>
Jan. 1	18 46 25.78	23 53 38.9	3825620	0 4.7	280 44 35.0	1 27 45.3	1553287
2	18 49 46.43	23 50 13.9	3823750	0 4.1	281 20 9.5	1 28 27.2	1550135
3	18 53 7.07	23 46 32.8	3821845	0 3.5	281 55 47.1	1 29 8.7	1547006
4	18 56 27.67	23 42 35.5	3819908	0 2.9	282 31 27.8	1 29 49.6	1543899
5	18 59 48.22	23 38 22.1	3817938	0 2.3	283 7 11.6	1 30 30.0	1540817
6	19 3 8.71	23 33 52.6	3815936	0 1.7	283 42 58.5	1 31 9.9	1537759
7	19 6 29.12	23 29 7.2	3813904	0 1.1	284 18 48.3	1 31 49.2	1534725
8	19 9 49.45	23 24 5.8	3811842	<div>{ 19 3</div>	284 54 41.2	1 32 28.0	1531716
9	19 13 9.67	23 18 48.5	3809752	23 59.3	285 30 37.1	1 33 6.2	1528733
10	19 16 29.77	23 13 15.4	3807635	23 58.7	286 6 35.9	1 33 43.9	1525775
11	19 19 49.73	23 7 26.6	3805490	23 58.1	286 42 37.7	1 34 21.0	1522843
12	19 23 9.56	23 1 22.0	3803319	23 57.5	287 18 42.5	1 34 57.6	1519938
13	19 26 29.24	22 55 1.7	3801120	23 56.8	287 54 50.1	1 35 33.5	1517060
14	19 29 48.75	22 48 25.8	3798894	23 56.2	288 31 0.6	1 36 8.9	1514209
15	19 33 8.09	22 41 34.3	3796641	23 55.6	289 7 14.0	1 36 43.7	1511386
16	19 36 27.24	22 34 27.4	3794364	23 55.0	289 43 30.2	1 37 17.8	1508591
17	19 39 46.18	22 27 5.1	3792061	23 54.3	290 19 49.2	1 37 51.4	1505825
18	19 43 4.91	22 19 27.6	3789730	23 53.7	290 56 11.0	1 38 24.4	1503088
19	19 46 23.42	22 11 35.0	3787371	23 53.1	291 32 35.6	1 38 56.7	1500380
20	19 49 41.69	22 3 27.4	3784984	23 52.4	292 9 2.8	1 39 28.4	1497702
21	19 52 59.71	21 55 4.9	3782571	23 51.8	292 45 32.8	1 39 59.5	1495054
22	19 56 17.46	21 46 27.6	3780134	23 51.1	293 22 5.5	1 40 30.0	1492437
23	19 59 34.93	21 37 35.6	3777671	23 50.5	293 58 40.8	1 40 59.8	1489851
24	20 2 52.11	21 28 29.2	3775180	23 49.8	294 35 18.7	1 41 28.9	1487297
25	20 6 8.99	21 19 8.3	3772665	23 49.1	295 11 59.2	1 41 57.4	1484774
26	20 9 25.56	21 9 33.0	3770127	23 48.5	295 48 42.3	1 42 25.2	1482284
27	20 12 41.81	20 59 43.6	3767566	23 47.8	296 25 27.9	1 42 52.4	1479826
28	20 15 57.72	20 49 40.2	3764980	23 47.1	297 2 16.0	1 43 18.8	1477401
29	20 19 13.29	20 39 22.9	3762372	23 46.4	297 39 6.6	1 43 44.6	1475010
30	20 22 28.51	20 28 51.8	3759742	23 45.7	298 15 59.6	1 44 9.7	1472652
31	20 25 43.37	20 18 7.2	3757092	23 45.0	298 52 55.0	1 44 34.1	1470329
Feb. 1	20 28 57.86	20 7 9.2	3754421	23 44.3	299 29 52.7	1 44 57.8	1468040
2	20 32 11.97	19 55 58.0	3751731	23 43.6	300 6 52.8	1 45 20.8	1465785
3	20 35 25.70	19 44 33.5	3749024	23 42.9	300 43 55.2	1 45 43.1	1463566
4	20 38 39.05	19 32 56.1	3746301	23 42.2	301 20 59.9	1 46 4.7	1461382
5	20 41 52.00	19 21 5.9	3743562	23 41.5	301 58 6.8	1 46 25.6	1459234
6	20 45 4.56	19 9 3.2	3740808	23 40.7	302 35 15.9	1 46 45.7	1457122
7	20 48 16.72	18 56 48.0	3738040	23 40.0	303 12 27.2	1 47 5.1	1455046
8	20 51 28.48	18 44 20.5	3735259	23 39.2	303 49 40.6	1 47 23.8	1453008
9	20 54 39.84	18 31 40.9	3732464	23 38.4	304 26 56.0	1 47 41.7	1451006
10	20 57 50.79	18 18 49.3	3729656	23 37.7	305 4 13.6	1 47 58.9	1449042
11	21 1 1.33	18 5 45.9	3726834	23 36.9	305 41 33.1	1 48 15.4	1447116

MEAN TIME.

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	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>South.</i> <i>° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>South.</i> <i>° ' "</i>	<i>°</i>
Feb. 11	21 1 1' 33	18 54 5' 9	3726834	23 36' 9	305 41 33' 1	1 48 15' 4	1447116
12	21 4 11' 47	17 52 30' 9	3723999	23 36' 1	306 18 54' 6	1 48 31' 1	1445228
13	21 7 21' 19	17 39 4' 4	3721151	23 35' 3	306 56 18' 1	1 48 46' 0	1443378
14	21 10 30' 51	17 25 26' 7	3718290	23 34' 5	307 33 43' 4	1 49 0' 2	1441567
15	21 13 39' 43	17 11 37' 9	3715415	23 33' 7	308 11 10' 7	1 49 13' 6	1439795
16	21 16 47' 93	16 57 38' 2	3712526	23 32' 9	308 48 39' 7	1 49 26' 3	1438062
17	21 19 56' 01	16 43 27' 8	3709621	23 32' 1	309 26 10' 5	1 49 38' 2	1436369
18	21 23 3' 67	16 29 7' 0	3706702	23 31' 3	310 3 43' 1	1 49 49' 3	1434716
19	21 26 10' 92	16 14 35' 9	3703767	23 30' 5	310 41 17' 4	1 49 59' 6	1433103
20	21 29 17' 75	15 59 54' 7	3700818	23 29' 6	311 18 53' 3	1 50 9' 2	1431531
21	21 32 24' 16	15 45 3' 5	3697857	23 28' 8	311 56 30' 9	1 50 17' 9	1430000
22	21 35 30' 14	15 30 2' 7	3694882	23 27' 9	312 34 10' 0	1 50 25' 9	1428510
23	21 38 35' 70	15 14 52' 4	3691890	23 27' 1	313 11 50' 7	1 50 33' 1	1427061
24	21 41 40' 83	14 59 32' 9	3688884	23 26' 2	313 49 32' 8	1 50 39' 5	1425653
25	21 44 45' 54	14 44 4' 2	3685866	23 25' 3	314 27 16' 4	1 50 45' 1	1424287
26	21 47 49' 83	14 28 26' 7	3682836	23 24' 5	315 5 1' 5	1 50 49' 9	1422963
27	21 50 53' 70	14 12 40' 5	3679792	23 23' 6	315 42 47' 8	1 50 53' 9	1421681
28	21 53 57' 15	13 56 45' 8	3676736	23 22' 7	316 20 33' 5	1 50 57' 1	1420441
29	21 57 0' 18	13 40 42' 8	3673668	23 21' 8	316 58 24' 5	1 50 59' 5	1419244
Mar. 1	22 0 28' 99	13 24 31' 8	3670588	23 20' 9	317 36 14' 7	1 51 1' 1	1418090
2	22 3 4' 99	13 8 13' 0	3667497	23 20' 0	318 14 6' 1	1 51 1' 9	1416979
3	22 6 6' 78	12 51 46' 5	3664397	23 19' 1	318 51 58' 6	1 51 1' 9	1415910
4	22 9 8' 17	12 35 12' 6	3661291	23 18' 1	319 29 52' 2	1 51 1' 0	1414886
5	22 12 9' 15	12 18 31' 4	3658177	23 17' 2	320 7 46' 9	1 50 59' 4	1413904
6	22 15 9' 74	12 1 43' 2	3655055	23 16' 3	320 45 42' 6	1 50 56' 9	1412967
7	22 18 9' 93	11 44 48' 1	3651927	23 15' 3	321 23 39' 2	1 50 53' 7	1412073
8	22 21 9' 74	11 27 46' 4	3648793	23 14' 4	322 1 36' 7	1 50 49' 6	1411223
9	22 24 9' 18	11 10 38' 3	3645652	23 13' 4	322 39 35' 2	1 50 44' 7	1410417
10	22 27 8' 26	10 53 23' 8	3642504	23 12' 5	323 17 34' 4	1 50 39' 0	1409656
11	22 30 6' 98	10 36 3' 3	3639349	23 11' 5	323 55 34' 4	1 50 32' 5	1408938
12	22 33 5' 33	10 18 37' 1	3636189	23 10' 5	324 33 35' 1	1 50 25' 2	1408266
13	22 36 3' 34	10 1 5' 2	3633020	23 9' 5	325 11 36' 5	1 50 17' 1	1407638
14	22 39 1' 01	9 43 27' 8	3629840	23 8' 5	325 49 38' 5	1 50 8' 2	1407055
15	22 41 58' 35	9 25 45' 1	3626650	23 7' 5	326 27 41' 2	1 49 58' 4	1406517
16	22 44 55' 36	9 7 57' 4	3623452	23 6' 5	327 5 44' 3	1 49 47' 9	1406024
17	22 47 52' 04	8 50 4' 8	3620245	23 5' 5	327 43 48' 0	1 49 36' 5	1405576
18	22 50 48' 41	8 32 7' 7	3617026	23 4' 5	328 21 52' 0	1 49 24' 3	1405173
19	22 53 44' 46	8 14 6' 1	3613796	23 3' 5	328 59 56' 5	1 49 11' 3	1404816
20	22 56 40' 21	7 56 0' 3	3610555	23 2' 5	329 38 1' 3	1 48 57' 5	1404503
21	22 59 35' 65	7 37 50' 5	3607303	23 1' 5	330 16 6' 4	1 48 43' 0	1404236
22	23 2 30' 80	7 19 36' 9	3604039	23 0' 5	330 54 11' 8	1 48 27' 6	1404014
23	23 5 25' 65	7 1 19' 7	3600762	22 59' 4	331 32 17' 4	1 48 11' 4	1403838

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
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	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	h m s	South. ° ' "	°	h m	° ' "	South. ° ' "	°
Mar. 23	23 5 25.65	7 1 19.7	3600762	22 59.4	331 32 17.4	1 48 11.4	1403838
24	23 8 20.22	6 42 59.2	3597472	22 58.4	332 10 23.1	1 47 54.4	1403707
25	23 11 14.51	6 24 35.5	3594170	22 57.3	332 48 28.9	1 47 36.6	1403622
26	23 14 8.52	6 6 8.8	3590857	22 56.3	333 26 34.8	1 47 18.0	1403582
27	23 17 2.27	5 47 39.3	3587531	22 55.3	334 4 40.6	1 46 58.6	1403588
28	23 19 55.75	5 29 7.3	3584192	22 54.2	334 42 46.5	1 46 38.5	1403640
29	23 22 48.98	5 10 32.9	3580842	22 53.1	335 20 52.2	1 46 17.5	1403736
30	23 25 41.96	4 51 56.4	3577482	22 52.1	335 58 57.8	1 45 55.8	1403879
31	23 28 34.70	4 33 18.0	3574112	22 51.0	336 37 3.2	1 45 33.3	1404066
Apr. 1	23 31 27.20	4 14 37.9	3570730	22 49.9	337 15 8.4	1 45 10.0	1404300
2	23 34 19.48	3 55 56.2	3567338	22 48.8	337 53 13.2	1 44 46.0	1404578
3	23 37 11.54	3 37 13.1	3563936	22 47.8	338 31 17.8	1 44 21.1	1404902
4	23 40 3.40	3 18 28.9	3560526	22 46.7	339 9 22.0	1 43 55.6	1405271
5	23 42 55.05	2 59 43.6	3557109	22 45.6	339 47 25.7	1 43 29.2	1405685
6	23 45 46.52	2 40 57.6	3553683	22 44.5	340 25 29.0	1 43 2.1	1406145
7	23 48 37.81	2 22 11.0	3550245	22 43.4	341 3 31.8	1 42 34.2	1406650
8	23 51 28.93	2 3 23.9	3546797	22 42.4	341 41 33.9	1 42 5.6	1407199
9	23 54 19.90	1 44 36.5	3543339	22 41.3	342 19 35.5	1 41 36.3	1407794
10	23 57 10.72	1 25 49.0	3539869	22 40.2	342 57 36.4	1 41 6.2	1408433
11	0 0 1.40	1 7 1.6	3536384	22 39.1	343 35 36.6	1 40 35.4	1409117
12	0 2 51.94	0 48 14.6	3532885	22 38.0	344 13 36.0	1 40 3.9	1409846
13	0 5 42.36	0 29 28.0	3529374	22 36.9	344 51 34.6	1 39 31.6	1410619
14	0 8 32.67	0 10 42.1	3525848	22 35.8	345 29 32.4	1 38 58.6	1411436
		North.					
15	0 11 22.87	0 8 3.0	3522305	22 34.6	346 7 29.3	1 38 25.0	1412297
16	0 14 12.97	0 26 47.1	3518745	22 33.5	346 45 25.2	1 37 50.6	1413202
17	0 17 2.97	0 45 29.9	3515168	22 32.4	347 23 20.1	1 37 15.5	1414151
18	0 19 52.87	1 4 11.3	3511572	22 31.3	348 1 14.0	1 36 39.7	1415144
19	0 22 42.70	1 22 51.0	3507956	22 30.2	348 39 6.8	1 36 3.2	1416180
20	0 25 32.45	1 41 29.0	3504320	22 29.1	349 16 58.5	1 35 26.1	1417260
21	0 28 22.13	2 0 5.0	3500664	22 28.0	349 54 49.0	1 34 48.3	1418382
22	0 31 11.75	2 18 38.9	3496987	22 26.8	350 32 38.3	1 34 9.8	1419548
23	0 34 1.31	2 37 10.4	3493288	22 25.7	351 10 26.3	1 33 30.7	1420756
24	0 36 50.81	2 55 39.3	3489568	22 24.6	351 48 13.0	1 32 50.9	1422007
25	0 39 40.27	3 14 5.6	3485825	22 23.5	352 25 58.3	1 32 10.4	1423301
26	0 42 29.68	3 32 28.9	3482060	22 22.4	353 3 42.3	1 31 29.3	1424636
27	0 45 19.06	3 50 49.1	3478273	22 21.3	353 41 24.8	1 30 47.6	1426013
28	0 48 8.42	4 9 6.1	3474465	22 20.2	354 19 5.9	1 30 5.3	1427432
29	0 50 57.75	4 27 19.7	3470635	22 19.0	354 56 45.4	1 29 22.3	1428893
30	0 53 47.06	4 45 29.6	3466783	22 17.9	355 34 23.4	1 28 38.7	1430394
May 1	0 56 36.36	5 3 35.8	3462910	22 16.8	356 11 59.8	1 27 54.5	1431937
2	0 59 25.66	5 21 38.0	3459017	22 15.7	356 49 34.4	1 27 9.7	1433520
3	1 2 14.97	5 39 36.2	3455103	22 14.6	357 27 7.5	1 26 24.3	1435144

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div>North.</div> <div>° ' "</div> <div>o</div> </div>							
<div> <div>h m s</div> <div>° ' "</div> <div>o</div> </div>							
May 3	1 2 14.97	5 39 35.2	3455103	22 14.6	357 27 7.5	1 26 24.3	1435144
4	1 5 4.30	5 57 30.0	3451167	22 13.4	358 4 38.7	1 25 38.3	1436808
5	1 7 53.66	6 15 19.4	3447210	22 12.3	358 42 8.3	1 24 51.8	1438512
6	1 10 43.05	6 33 4.3	3443229	22 11.2	359 19 36.0	1 24 4.7	1440256
7	1 13 32.49	6 50 44.4	3439222	22 10.1	359 57 1.8	1 23 17.0	1442039
8	1 16 21.97	7 8 19.6	3435190	22 9.0	0 34 25.8	1 22 28.8	1443861
9	1 19 11.51	7 25 49.9	3431132	22 7.8	1 11 47.9	1 21 40.0	1445721
10	1 22 1.12	7 43 15.0	3427048	22 6.7	1 49 7.9	1 20 50.7	1447620
11	1 24 50.80	8 0 34.6	3422936	22 5.6	2 26 26.0	1 20 0.8	1449557
12	1 27 40.55	8 17 48.8	3418794	22 4.5	3 3 42.1	1 19 10.5	1451532
13	1 30 30.38	8 34 57.5	3414621	22 3.4	3 40 56.1	1 18 19.6	1453544
14	1 33 20.30	8 52 0.3	3410415	22 2.3	4 18 8.0	1 17 28.3	1455594
15	1 36 10.30	9 8 57.0	3406176	22 1.2	4 55 17.7	1 16 36.4	1457680
16	1 39 0.40	9 25 47.6	3401903	22 0.1	5 32 25.2	1 15 44.1	1459802
17	1 41 50.60	9 42 31.9	3397596	21 59.0	6 9 30.5	1 14 51.3	1461961
18	1 44 40.90	9 59 9.8	3393252	21 57.9	6 46 33.6	1 13 58.0	1464156
19	1 47 31.30	10 15 41.1	3388870	21 56.8	7 23 34.4	1 13 4.2	1466386
20	1 50 21.81	10 32 5.7	3384450	21 55.7	8 0 32.9	1 12 10.0	1468651
21	1 53 12.43	10 48 23.3	3379990	21 54.6	8 37 29.0	1 11 15.4	1470951
22	1 56 3.16	11 4 33.8	3375489	21 53.5	9 14 22.7	1 10 20.3	1473285
23	1 58 54.01	11 20 37.1	3370947	21 52.4	9 51 14.0	1 9 24.8	1475653
24	2 1 44.97	11 36 33.1	3366365	21 51.3	10 28 2.9	1 8 28.9	1478055
25	2 4 36.04	11 52 21.6	3361744	21 50.2	11 4 49.3	1 7 32.6	1480490
26	2 7 27.22	12 8 2.4	3357081	21 49.1	11 41 33.1	1 6 35.8	1482959
27	2 10 18.52	12 23 35.4	3352373	21 48.1	12 18 14.4	1 5 38.7	1485460
28	2 13 9.94	12 39 0.4	3347624	21 47.0	12 54 53.1	1 4 41.2	1487993
29	2 16 1.50	12 54 17.3	3342837	21 45.9	13 31 29.3	1 3 43.3	1490557
30	2 18 53.18	13 9 25.9	3338010	21 44.8	14 8 2.8	1 2 45.1	1493154
31	2 21 44.99	13 24 26.1	3333140	21 43.7	14 44 33.6	1 1 46.5	1495781
June 1	2 24 36.94	13 39 17.9	3328226	21 42.7	15 21 1.8	1 0 47.5	1498438
2	2 27 29.03	13 54 1.2	3323269	21 41.6	15 57 27.2	0 59 48.3	1501126
3	2 30 21.27	14 8 35.7	3318267	21 40.5	16 33 49.9	0 58 48.7	1503844
4	2 33 13.66	14 23 1.4	3313219	21 39.4	17 10 9.9	0 57 48.7	1506591
5	2 36 6.20	14 37 18.1	3308125	21 38.4	17 46 27.0	0 56 48.5	1509367
6	2 38 58.89	14 51 25.8	3302986	21 37.3	18 22 41.3	0 55 48.0	1512171
7	2 41 51.73	15 5 24.3	3297799	21 36.3	18 58 52.8	0 54 47.1	1515004
8	2 44 44.73	15 19 13.6	3292560	21 35.2	19 35 1.5	0 53 46.0	1517864
9	2 47 37.88	15 32 53.4	3287269	21 34.1	20 11 7.2	0 52 44.6	1520752
10	2 50 31.19	15 46 23.7	3281926	21 33.1	20 47 10.0	0 51 43.0	1523667
11	2 53 24.65	15 59 44.3	3276529	21 32.1	21 23 9.9	0 50 41.1	1526608
12	2 56 18.26	16 12 55.2	3271076	21 31.0	21 59 6.9	0 49 38.9	1529575
13	2 59 12.03	16 25 56.3	3265566	21 30.0	22 35 0.9	0 48 36.5	1532568

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s.</i>	<i>North. °</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>South. ° ' "</i>	<i>°</i>
June 13	2 59 12.03	16 25 56.3	3265566	21 30.0	22 35 0.9	0 48 36.5	1532568
14	3 2 5.95	16 38 47.4	3259998	21 28.9	23 10 51.8	0 47 33.9	1535587
15	3 5 0.03	16 51 28.4	3254370	21 27.9	23 46 39.8	0 46 31.0	1538630
16	3 7 54.25	17 3 59.1	3248680	21 26.8	24 22 24.7	0 45 28.0	1541697
17	3 10 48.62	17 16 19.5	3242927	21 25.8	24 58 6.6	0 44 24.7	1544789
18	3 13 43.12	17 28 29.5	3237109	21 24.8	25 33 45.4	0 43 21.2	1547904
19	3 16 37.76	17 40 29.0	3231225	21 23.8	26 9 21.0	0 42 17.6	1551043
20	3 19 32.53	17 52 18.0	3225276	21 22.7	26 44 53.6	0 41 13.8	1554204
21	3 22 27.43	18 3 56.2	3219261	21 21.7	27 20 23.0	0 40 9.8	1557388
22	3 25 22.43	18 15 23.6	3213181	21 20.7	27 55 49.3	0 39 5.6	1560594
23	3 28 17.55	18 26 40.1	3207033	21 19.7	28 31 12.4	0 38 1.3	1563821
24	3 31 12.78	18 37 45.6	3200815	21 18.6	29 6 32.4	0 36 56.8	1567069
25	3 34 8.11	18 48 40.1	3194530	21 17.6	29 41 49.1	0 35 52.2	1570338
26	3 37 3.54	18 59 23.3	3188179	21 16.6	30 17 2.7	0 34 47.5	1573626
27	3 39 59.07	19 9 55.3	3181761	21 15.6	30 52 13.0	0 33 42.6	1576935
28	3 42 54.69	19 20 15.9	3175273	21 14.6	31 27 20.1	0 32 37.7	1580263
29	3 45 50.41	19 30 25.0	3168715	21 13.6	32 2 23.9	0 31 32.6	1583610
30	3 48 46.22	19 40 22.8	3162086	21 12.5	32 37 24.5	0 30 27.4	1586975
July 1	3 51 42.12	19 50 9.0	3155386	21 11.5	33 12 21.8	0 29 22.2	1590358
2	3 54 38.10	19 59 43.7	3148614	21 10.5	33 47 15.8	0 28 16.8	1593759
3	3 57 34.15	20 9 6.7	3141768	21 9.5	34 22 6.5	0 27 11.4	1597177
4	4 0 30.28	20 18 18.1	3134847	21 8.5	34 56 53.9	0 26 6.0	1600612
5	4 3 26.47	20 27 17.7	3127850	21 7.5	35 31 38.0	0 25 0.4	1604063
6	4 6 22.73	20 36 5.5	3120776	21 6.5	36 6 18.8	0 23 54.8	1607530
7	4 9 19.05	20 44 41.5	3113624	21 5.5	36 40 56.2	0 22 49.2	1611012
8	4 12 15.42	20 53 5.6	3106390	21 4.5	37 15 30.3	0 21 43.6	1614510
9	4 15 11.83	21 1 17.7	3099074	21 3.5	37 50 1.0	0 20 37.9	1618022
10	4 18 8.29	21 9 17.9	3091675	21 2.5	38 24 28.4	0 19 32.2	1621549
11	4 21 4.78	21 17 6.0	3084191	21 1.5	38 58 52.4	0 18 26.5	1625089
12	4 24 1.28	21 24 42.1	3076620	21 0.5	39 33 13.0	0 17 20.8	1628643
13	4 26 57.80	21 32 6.0	3068960	20 59.5	40 7 30.3	0 16 15.1	1632210
14	4 29 54.33	21 39 17.8	3061209	20 58.5	40 41 44.1	0 15 9.4	1635789
15	4 32 50.85	21 46 17.5	3053365	20 57.5	41 15 54.6	0 14 3.8	1639381
16	4 35 47.36	21 53 5.0	3045428	20 56.5	41 50 1.6	0 12 58.1	1642984
17	4 38 43.85	21 59 40.3	3037395	20 55.5	42 24 5.3	0 11 52.5	1646598
18	4 41 40.29	22 6 3.4	3029265	20 54.5	42 58 5.5	0 10 47.0	1650224
19	4 44 36.68	22 12 14.2	3021038	20 53.5	43 32 2.4	0 9 41.5	1653860
20	4 47 33.01	22 18 12.7	3012713	20 52.5	44 5 55.8	0 8 36.0	1657506
21	4 50 29.27	22 23 58.9	3004289	20 51.5	44 39 45.8	0 7 30.6	1661162
22	4 53 25.44	22 29 32.9	2995765	20 50.5	45 13 32.4	0 6 25.3	1664827
23	4 56 21.51	22 34 54.6	2987142	20 49.5	45 47 15.5	0 5 20.0	1668501
24	4 59 17.49	22 40 3.9	2978421	20 48.5	46 20 55.2	0 4 14.8	1672183

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div>North.</div> <div>° ' "</div> </div>							
<div> <div>h m s</div> <div>° ' "</div> </div>							
July 24	4 59 17.49	22 40 3.9	2978421	20 48.5	46 20 55.2	0 4 14.8	1672183
25	5 2 13.35	22 45 0.8	2969599	20 47.4	46 54 31.5	0 3 9.7	1675874
26	5 5 9.08	22 49 45.4	2960675	20 46.4	47 28 4.3	0 2 4.7	1679572
27	5 8 4.67	22 54 17.7	2951649	20 45.4	48 1 33.7	0 0 59.8	1683277
<div> <div>North.</div> <div>° ' "</div> </div>							
28	5 11 0.14	22 58 37.8	2942522	20 44.4	48 34 59.7	0 0 5.0	1686989
29	5 13 55.46	23 2 45.7	2933293	20 43.4	49 8 22.3	0 1 9.7	1690708
30	5 16 50.63	23 6 41.3	2923960	20 42.3	49 41 41.4	0 2 14.3	1694433
31	5 19 45.63	23 10 24.7	2914520	20 41.3	50 14 57.1	0 3 18.8	1698163
Aug. 1	5 22 40.46	23 13 55.9	2904972	20 40.3	50 48 9.4	0 4 23.1	1701899
2	5 25 35.10	23 17 15.0	2895315	20 39.3	51 21 18.2	0 5 27.3	1705640
3	5 28 29.56	23 20 22.0	2885550	20 38.2	51 54 23.6	0 6 31.4	1709386
4	5 31 23.81	23 23 17.0	2875674	20 37.2	52 27 25.6	0 7 35.3	1713136
5	5 34 17.85	23 26 0.0	2865684	20 36.1	53 0 24.2	0 8 39.1	1716890
6	5 37 11.68	23 28 30.9	2855578	20 35.1	53 33 19.3	0 9 42.6	1720647
7	5 40 5.29	23 30 49.9	2845356	20 34.0	54 6 11.0	0 10 46.1	1724408
8	5 42 58.66	23 32 56.9	2835015	20 33.0	54 38 59.4	0 11 49.3	1728171
9	5 45 51.77	23 34 52.1	2824551	20 31.9	55 11 44.3	0 12 52.4	1731937
10	5 48 44.62	23 36 35.6	2813965	20 30.9	55 44 25.8	0 13 55.3	1735705
11	5 51 37.20	23 38 7.3	2803256	20 29.8	56 17 3.9	0 14 58.0	1739474
12	5 54 29.50	23 39 27.3	2792420	20 28.7	56 49 38.6	0 16 0.6	1743245
13	5 57 21.50	23 40 35.7	2781453	20 27.7	57 22 10.0	0 17 2.9	1747017
14	6 0 13.19	23 41 32.6	2770355	20 26.6	57 54 37.9	0 18 5.0	1750789
15	6 3 4.56	23 42 18.1	2759121	20 25.5	58 27 2.5	0 19 7.0	1754562
16	6 5 55.59	23 42 52.2	2747756	20 24.4	58 59 23.7	0 20 8.7	1758335
17	6 8 46.26	23 43 14.9	2736262	20 23.3	59 31 41.5	0 21 10.2	1762107
18	6 11 36.56	23 43 26.4	2724635	20 22.2	60 3 56.0	0 22 11.5	1765879
19	6 14 26.49	23 43 26.8	2712870	20 21.0	60 36 7.2	0 23 12.6	1769649
20	6 17 16.03	23 43 16.1	2700968	20 19.9	61 8 15.0	0 24 13.4	1773318
21	6 20 5.16	23 42 54.3	2688925	20 18.8	61 40 19.4	0 25 14.0	1777185
22	6 22 53.88	23 42 21.6	2676746	20 17.7	62 12 20.5	0 26 14.4	1780951
23	6 25 42.18	23 41 38.0	2664434	20 16.5	62 44 18.4	0 27 14.6	1784713
24	6 28 30.05	23 40 43.7	2651984	20 15.4	63 16 12.9	0 28 14.4	1788473
25	6 31 17.49	23 39 38.8	2639392	20 14.2	63 48 4.1	0 29 14.1	1792230
26	6 34 4.49	23 38 23.5	2626658	20 13.0	64 19 52.0	0 30 13.5	1795984
27	6 36 51.02	23 36 57.7	2613781	20 11.9	64 51 36.6	0 31 12.6	1799733
28	6 39 37.09	23 35 21.6	2600761	20 10.7	65 23 17.9	0 32 11.5	1803479
29	6 42 22.69	23 33 35.3	2587596	20 9.5	65 54 56.0	0 33 10.1	1807220
30	6 45 7.82	23 31 38.9	2574286	20 8.3	66 26 30.8	0 34 8.4	1810957
31	6 47 52.46	23 29 32.6	2560829	20 7.1	66 58 2.3	0 35 6.5	1814688
Sept. 1	6 50 36.61	23 27 16.4	2547222	20 5.9	67 29 30.7	0 36 4.3	1818415
2	6 53 20.26	23 24 50.4	2533465	20 4.7	68 0 55.8	0 37 1.8	1822136
3	6 56 3.40	23 22 14.8	2519554	20 3.4	68 32 17.7	0 37 59.0	1825850

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
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	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div> <div>h m s</div> <div>North.</div> <div>° ' "</div> <div>o</div> </div> <div> <div>h m s</div> <div>North.</div> <div>° ' "</div> <div>o</div> </div> </div>							
Sept. 3	6 56 3.40	23 22 14.8	.2519554	20 3.4	68 32 17.7	0 37 59.0	.1825850
4	6 58 46.02	23 19 29.6	.2505486	20 2.2	69 3 36.3	0 38 55.9	.1829559
5	7 1 28.12	23 16 35.0	.2491260	20 0.9	69 34 51.8	0 39 52.6	.1833262
6	7 4 9.69	23 13 31.3	.2476873	19 59.7	70 6 4.1	0 40 48.9	.1836958
7	7 6 50.71	23 10 18.4	.2462324	19 58.4	70 37 13.3	0 41 45.0	.1840646
8	7 9 31.18	23 6 56.4	.2447612	19 57.1	71 8 19.3	0 42 40.7	.1844328
9	7 12 11.09	23 3 25.6	.2432734	19 55.9	71 39 22.1	0 43 36.2	.1848002
10	7 14 50.43	22 59 46.2	.2417685	19 54.6	72 10 21.8	0 44 31.3	.1851668
11	7 17 29.19	22 55 58.2	.2402464	19 53.3	72 41 18.4	0 45 26.2	.1855327
12	7 20 7.36	22 52 1.7	.2387070	19 52.0	73 12 11.9	0 46 20.7	.1858976
13	7 22 44.91	22 47 56.9	.2371502	19 50.6	73 43 2.3	0 47 14.9	.1862618
14	7 25 21.84	22 43 44.0	.2355757	19 49.3	74 13 49.6	0 48 8.8	.1866250
15	7 27 58.13	22 39 23.2	.2339836	19 48.0	74 44 33.8	0 49 2.4	.1869873
16	7 30 33.78	22 34 54.5	.2323739	19 46.6	75 15 14.9	0 49 55.6	.1873487
17	7 33 8.79	22 30 18.0	.2307464	19 45.2	75 45 53.1	0 50 48.5	.1877091
18	7 35 43.14	22 25 34.0	.2291008	19 43.8	76 16 28.2	0 51 41.1	.1880686
19	7 38 16.83	22 20 42.5	.2274370	19 42.5	76 47 0.3	0 52 33.4	.1884270
20	7 40 49.83	22 15 43.8	.2257551	19 41.1	77 17 29.3	0 53 25.3	.1887844
21	7 43 22.14	22 10 38.0	.2240549	19 39.7	77 47 55.4	0 54 16.9	.1891407
22	7 45 53.77	22 5 25.3	.2223365	19 38.2	78 18 18.5	0 55 8.2	.1894959
23	7 48 24.71	22 0 5.8	.2205998	19 36.8	78 48 38.6	0 55 59.1	.1898500
24	7 50 54.95	21 54 39.7	.2188447	19 35.3	79 18 55.8	0 56 49.6	.1902030
25	7 53 24.49	21 49 7.1	.2170710	19 33.9	79 49 10.1	0 57 39.8	.1905548
26	7 55 53.32	21 43 28.3	.2152783	19 32.4	80 19 21.4	0 58 29.7	.1909054
27	7 58 21.43	21 37 43.4	.2134667	19 30.9	80 49 29.9	0 59 19.2	.1912548
28	8 0 48.82	21 31 52.4	.2116360	19 29.4	81 19 35.4	1 0 8.4	.1916030
29	8 3 15.49	21 25 55.6	.2097861	19 27.9	81 49 38.1	1 0 57.2	.1919499
30	8 5 41.42	21 19 53.1	.2079167	19 26.4	82 19 37.9	1 1 45.7	.1922956
Oct. 1	8 8 6.61	21 13 45.2	.2060277	19 24.9	82 49 34.9	1 2 33.8	.1926399
2	8 10 31.07	21 7 31.9	.2041188	19 23.3	83 19 29.1	1 3 21.5	.1929830
3	8 12 54.78	21 1 13.5	.2021896	19 21.8	83 49 20.4	1 4 8.9	.1933247
4	8 15 17.73	20 54 50.1	.2002399	19 20.2	84 19 9.0	1 4 55.9	.1936651
5	8 17 39.92	20 48 21.8	.1982694	19 18.6	84 48 54.7	1 5 42.6	.1940040
6	8 20 1.35	20 41 48.9	.1962778	19 17.0	85 18 37.7	1 6 28.8	.1943416
7	8 22 22.00	20 35 11.5	.1942650	19 15.4	85 48 18.0	1 7 14.7	.1946778
8	8 24 41.86	20 28 30.0	.1922309	19 13.8	86 17 55.6	1 8 0.3	.1950125
9	8 27 0.92	20 21 44.4	.1901751	19 12.2	86 47 30.4	1 8 45.4	.1953457
10	8 29 19.17	20 14 54.9	.1880972	19 10.5	87 17 2.5	1 9 30.2	.1956775
11	8 31 36.61	20 8 1.8	.1859973	19 8.9	87 46 31.9	1 10 14.6	.1960077
12	8 33 53.22	20 1 5.2	.1838753	19 7.2	88 15 58.7	1 10 58.7	.1963365
13	8 36 8.98	19 54 5.2	.1817311	19 5.5	88 45 22.8	1 11 42.3	.1966637
14	8 38 23.89	19 47 2.1	.1795645	19 3.8	89 14 44.3	1 12 25.6	.1969893

MEAN TIME.

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	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div>h m s</div> <div>° ' "</div> <div>°</div> <div>h m</div> <div>° ' "</div> <div>°</div> </div>							
Oct. 14	8 38 23.89	19 47 2.1	1795645	19 3.8	89 14 44.3	1 12 25.6	1969893
15	8 40 37.94	19 39 56.1	1773753	19 2.1	89 44 3.2	1 13 8.5	1973134
16	8 42 51.12	19 32 47.3	1751632	19 0.3	90 13 19.5	1 13 51.0	1976359
17	8 45 3.41	19 25 36.0	1729284	18 58.6	90 42 33.2	1 14 33.2	1979567
18	8 47 14.80	19 18 22.4	1706708	18 56.8	91 11 44.3	1 15 14.9	1982759
19	8 49 25.29	19 11 6.7	1683904	18 55.1	91 40 52.8	1 15 56.3	1985935
20	8 51 34.89	19 3 49.0	1660872	18 53.3	92 9 58.9	1 16 37.3	1989094
21	8 53 43.57	18 56 29.5	1637611	18 51.5	92 39 2.4	1 17 17.9	1992236
22	8 55 51.33	18 49 8.5	1614120	18 49.6	93 8 3.4	1 17 58.1	1995361
23	8 57 58.16	18 41 46.2	1590397	18 47.8	93 37 2.0	1 18 37.9	1998469
24	9 0 4.06	18 34 22.7	1566441	18 45.9	94 5 58.1	1 19 17.3	2001560
25	9 2 9.01	18 26 58.2	1542252	18 44.1	94 34 51.7	1 19 56.3	2004633
26	9 4 13.01	18 19 32.9	1517827	18 42.2	95 3 42.9	1 20 35.0	2007689
27	9 6 16.06	18 12 7.1	1493166	18 40.3	95 32 31.7	1 21 13.2	2010727
28	9 8 18.15	18 4 40.8	1468266	18 38.4	96 1 18.1	1 21 51.0	2013747
29	9 10 19.27	17 57 14.4	1443126	18 36.4	96 30 2.1	1 22 28.5	2016749
30	9 12 19.40	17 49 47.9	1417743	18 34.5	96 58 43.8	1 23 5.6	2019733
31	9 14 18.54	17 42 21.7	1392115	18 32.5	97 27 23.1	1 23 42.2	2022699
Nov. 1	9 16 16.68	17 34 55.9	1366241	18 30.5	97 56 0.1	1 24 18.5	2025645
2	9 18 13.81	17 27 30.7	1340118	18 28.5	98 24 34.8	1 24 54.3	2028574
3	9 20 9.92	17 20 6.5	1313740	18 26.5	98 53 7.3	1 25 29.8	2031483
4	9 22 5.00	17 12 43.4	1287109	18 24.5	99 21 37.4	1 26 4.9	2034373
5	9 23 59.02	17 5 21.7	1260224	18 22.4	99 50 5.3	1 26 39.5	2037244
6	9 25 51.97	16 58 1.5	1233082	18 20.4	100 18 31.0	1 27 13.8	2040096
7	9 27 43.83	16 50 43.0	1205680	18 18.3	100 46 54.4	1 27 47.6	2042929
8	9 29 34.58	16 43 26.5	1178018	18 16.2	101 15 15.7	1 28 21.1	2045742
9	9 31 24.22	16 36 12.4	1150095	18 14.0	101 43 34.8	1 28 54.2	2048535
10	9 33 12.72	16 29 0.8	1121911	18 11.9	102 11 51.7	1 29 26.8	2051308
11	9 35 0.05	16 21 51.9	1093465	18 9.7	102 40 6.5	1 29 59.1	2054062
12	9 36 46.20	16 14 46.1	1064759	18 7.5	103 8 19.1	1 30 30.9	2056795
13	9 38 31.15	16 7 43.5	1035791	18 5.3	103 36 29.6	1 31 2.4	2059508
14	9 40 14.88	16 0 44.4	1006564	18 3.1	104 4 38.1	1 31 33.4	2062200
15	9 41 57.37	15 53 49.1	0977078	18 0.9	104 32 44.5	1 32 4.0	2064873
16	9 43 38.60	15 46 57.9	0947334	17 58.6	105 0 48.8	1 32 34.3	2067525
17	9 45 18.57	15 40 10.8	0917332	17 56.3	105 28 51.1	1 33 4.1	2070156
18	9 46 57.26	15 33 28.2	0887074	17 54.0	105 56 51.4	1 33 33.5	2072766
19	9 48 34.63	15 26 50.4	0856564	17 51.7	106 24 49.7	1 34 2.5	2075356
20	9 50 10.68	15 20 17.5	0825802	17 49.3	106 52 46.0	1 34 31.1	2077924
21	9 51 45.39	15 13 49.8	0794788	17 46.9	107 20 40.4	1 34 59.3	2080472
22	9 53 18.75	15 7 27.5	0763522	17 44.5	107 48 32.8	1 35 27.1	2082998
23	9 54 50.73	15 1 10.9	0732006	17 42.1	108 16 23.3	1 35 54.4	2085503
24	9 56 21.31	14 55 0.3	0700240	17 39.7	108 44 11.9	1 36 21.4	2087987

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>North. ° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>North. ° ' "</i>	<i>°</i>
Nov. 24	9 56 21.31	14 55 0.3	0.700240	17 39.7	108 44 11.9	1 36 21.4	2.087987
25	9 57 50.47	14 48 56.0	0.668227	17 37.2	109 11 58.6	1 36 48.0	2.090449
26	9 59 18.19	14 42 58.1	0.635967	17 34.7	109 39 43.4	1 37 14.1	2.092889
27	10 0 44.46	14 37 6.8	0.603461	17 32.2	110 7 26.4	1 37 39.8	2.095308
28	10 2 9.24	14 31 22.5	0.570710	17 29.6	110 35 7.6	1 38 5.2	2.097705
29	10 3 32.51	14 25 45.5	0.537714	17 27.1	111 2 46.9	1 38 30.1	2.100080
30	10 4 54.24	14 20 16.0	0.504474	17 24.5	111 30 24.5	1 38 54.6	2.102434
Dec. 1	10 6 14.41	14 14 54.3	0.470992	17 21.8	111 58 0.3	1 39 18.7	2.104765
2	10 7 32.99	14 9 40.8	0.437270	17 19.2	112 25 34.3	1 39 42.4	2.107074
3	10 8 49.95	14 4 35.6	0.403311	17 16.5	112 53 6.6	1 40 5.7	2.109361
4	10 10 5.26	13 59 39.1	0.369116	17 13.8	113 20 37.2	1 40 28.6	2.111625
5	10 11 18.89	13 54 51.5	0.334686	17 11.1	113 48 6.0	1 40 51.0	2.113867
6	10 12 30.78	13 50 13.3	0.300029	17 8.3	114 15 33.2	1 41 13.1	2.116087
7	10 13 40.90	13 45 44.7	0.265151	17 5.5	114 42 58.7	1 41 34.7	2.118283
8	10 14 49.21	13 41 26.0	0.230055	17 2.7	115 10 22.6	1 41 55.9	2.120457
9	10 15 55.70	13 37 17.5	0.194744	16 59.9	115 37 44.9	1 42 16.8	2.122609
10	10 17 0.30	13 33 19.6	0.159228	16 57.0	116 5 5.5	1 42 37.2	2.124737
11	10 18 2.97	13 29 32.5	0.123515	16 54.1	116 32 24.6	1 42 57.2	2.126843
12	10 19 3.69	13 25 56.6	0.087612	16 51.1	116 59 42.1	1 43 16.8	2.128925
13	10 20 2.41	13 22 32.2	0.051527	16 48.1	117 26 58.0	1 43 36.0	2.130984
14	10 20 59.11	13 19 19.5	0.015271	16 45.1	117 54 12.4	1 43 54.8	2.133020
15	10 21 53.74	13 16 18.9	9978854	16 42.1	118 21 25.3	1 44 13.2	2.135033
16	10 22 46.27	13 13 30.7	9942287	16 39.0	118 48 36.7	1 44 31.2	2.137022
17	10 23 36.65	13 10 54.9	9905579	16 35.9	119 15 46.6	1 44 48.7	2.138987
18	10 24 24.86	13 8 32.0	9868744	16 32.7	119 42 55.1	1 45 5.9	2.140930
19	10 25 10.86	13 6 22.2	9831791	16 29.5	120 10 2.1	1 45 22.7	2.142848
20	10 25 54.61	13 4 25.9	9794736	16 26.3	120 37 7.7	1 45 39.0	2.144743
21	10 26 35.06	13 2 43.2	9757593	16 23.0	121 4 11.9	1 45 55.0	2.146615
22	10 27 15.18	13 1 14.5	9720372	16 19.7	121 31 14.8	1 46 10.5	2.148462
23	10 27 51.94	13 0 0.0	9683083	16 16.4	121 58 16.2	1 46 25.6	2.150286
24	10 28 26.29	12 58 59.9	9645744	16 13.0	122 25 16.3	1 46 40.4	2.152086
25	10 28 58.20	12 58 14.3	9608369	16 9.5	122 52 15.1	1 46 54.7	2.153862
26	10 29 27.62	12 57 43.7	9570974	16 6.1	123 19 12.6	1 47 8.6	2.155614
27	10 29 54.53	12 57 28.3	9533574	16 2.6	123 46 8.8	1 47 22.1	2.157342
28	10 30 18.88	12 57 28.3	9496186	15 59.0	124 13 3.7	1 47 35.2	2.159046
29	10 30 40.61	12 57 43.8	9458827	15 55.4	124 39 57.4	1 47 47.9	2.160726
30	10 30 59.69	12 58 15.1	9421517	15 51.8	125 6 49.8	1 48 0.2	2.162381
31	10 31 16.08	12 59 2.3	9384277	15 48.1	125 33 41.0	1 48 12.1	2.164012
32	10 31 29.73	13 0 5.8	9347128	15 44.3	126 0 31.1	1 48 23.5	2.165619

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>South.</i> <i>° ' "</i>	<i>°</i>	<i>h m</i> <i>° ' "</i>	<i>° ' "</i>	<i>South.</i> <i>° ' "</i>	<i>°</i>
Jan. 1	22 28 27.86	10 44 10.0	7392793	3 46.3	344 7 14.2	1 11 19.7	6971799
2	22 29 10.41	10 39 55.9	7402849	3 43.0	344 12 40.6	1 11 22.8	6971643
3	22 29 53.33	10 35 39.3	7412776	3 39.8	344 18 7.0	1 11 26.0	6971488
4	22 30 36.60	10 31 20.3	7422572	3 36.6	344 23 33.4	1 11 29.1	6971333
5	22 31 20.22	10 26 59.0	7432237	3 33.4	344 28 59.8	1 11 32.2	6971179
6	22 32 4.18	10 22 35.4	7441770	3 30.2	344 34 26.3	1 11 35.3	6971025
7	22 32 48.47	10 18 9.4	7451171	3 27.0	344 39 52.8	1 11 38.4	6970872
8	22 33 33.09	10 13 41.2	7460439	3 23.8	344 45 19.3	1 11 41.4	6970719
9	22 34 18.03	10 9 10.8	7469573	3 20.6	344 50 45.8	1 11 44.5	6970567
10	22 35 3.28	10 4 38.2	7478573	3 17.4	344 56 12.4	1 11 47.6	6970415
11	22 35 48.84	10 0 3.4	7487438	3 14.3	345 1 38.9	1 11 50.6	6970263
12	22 36 34.71	9 55 26.5	7496168	3 11.1	345 7 5.5	1 11 53.7	6970112
13	22 37 20.87	9 50 47.5	7504761	3 7.9	345 12 32.2	1 11 56.7	6969962
14	22 38 7.32	9 46 6.4	7513218	3 4.8	345 17 58.8	1 11 59.7	6969811
15	22 38 54.06	9 41 23.3	7521538	3 1.6	345 23 25.5	1 12 2.7	6969661
16	22 39 41.07	9 36 38.2	7529719	2 58.4	345 28 52.2	1 12 5.7	6969512
17	22 40 28.36	9 31 51.1	7537761	2 55.3	345 34 18.9	1 12 8.7	6969363
18	22 41 15.92	9 27 2.1	7545662	2 52.1	345 39 45.6	1 12 11.6	6969214
19	22 42 3.73	9 22 11.2	7553423	2 49.0	345 45 12.4	1 12 14.6	6969066
20	22 42 51.80	9 17 18.4	7561043	2 45.9	345 50 39.2	1 12 17.5	6968918
21	22 43 40.12	9 12 23.7	7568520	2 42.7	345 56 6.0	1 12 20.5	6968771
22	22 44 28.69	9 7 27.2	7575854	2 39.6	346 1 32.8	1 12 23.4	6968624
23	22 45 17.49	9 2 28.9	7583044	2 36.5	346 6 59.6	1 12 26.3	6968477
24	22 46 6.52	8 57 29.0	7590089	2 33.4	346 12 26.5	1 12 29.2	6968331
25	22 46 55.77	8 52 27.3	7596990	2 30.3	346 17 53.4	1 12 32.1	6968185
26	22 47 45.24	8 47 24.0	7603745	2 27.2	346 23 20.3	1 12 35.0	6968040
27	22 48 34.92	8 42 19.0	7610353	2 24.0	346 28 47.2	1 12 37.9	6967895
28	22 49 24.80	8 37 12.5	7616814	2 20.9	346 34 14.1	1 12 40.7	6967751
29	22 50 14.88	8 32 4.4	7623129	2 17.8	346 39 41.1	1 12 43.6	6967607
30	22 51 5.15	8 26 54.8	7629296	2 14.7	346 45 8.1	1 12 46.4	6967463
31	22 51 55.60	8 21 43.7	7635315	2 11.6	346 50 35.1	1 12 49.3	6967320
Feb. 1	22 52 46.23	8 16 31.2	7641187	2 8.6	346 56 2.1	1 12 52.1	6967177
2	22 53 37.03	8 11 17.3	7646911	2 5.5	347 1 29.1	1 12 54.9	6967035
3	22 54 27.99	8 6 2.0	7652487	2 2.4	347 6 56.2	1 12 57.7	6966894
4	22 55 19.12	8 0 45.3	7657916	1 59.3	347 12 23.3	1 13 0.5	6966752
5	22 56 10.41	7 55 27.4	7663196	1 56.2	347 17 50.4	1 13 3.2	6966612
6	22 57 1.84	7 50 8.3	7668329	1 53.1	347 23 17.5	1 13 6.0	6966471
7	22 57 53.41	7 44 47.9	7673315	1 50.1	347 28 44.7	1 13 8.7	6966331
8	22 58 45.12	7 39 26.3	7678153	1 47.0	347 34 11.8	1 13 11.5	6966192
9	22 59 36.97	7 34 3.6	7682844	1 43.9	347 39 39.0	1 13 14.2	6966053
10	23 0 28.95	7 28 39.8	7687386	1 40.8	347 45 6.2	1 13 16.9	6965914
11	23 1 21.05	7 23 14.8	7691780	1 37.8	347 50 33.4	1 13 19.6	6965776

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>South. ° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>South. ° ' "</i>	<i>°</i>
Feb. 11	23 1 21.05	7 23 14.8	.7691780	1 37.8	347 50 33.4	1 13 19.6	.6965776
12	23 2 13.28	7 17 48.8	.7696025	1 34.7	347 56 0.7	1 13 22.3	.6965639
13	23 3 5.63	7 12 21.7	.7700122	1 31.7	348 1 28.0	1 13 25.0	.6965502
14	23 3 58.09	7 6 53.6	.7704069	1 28.6	348 6 55.3	1 13 27.7	.6965365
15	23 4 50.66	7 1 24.5	.7707868	1 25.5	348 12 22.6	1 13 30.4	.6965228
16	23 5 43.33	6 55 54.5	.7711517	1 22.5	348 17 49.9	1 13 33.0	.6965092
17	23 6 36.09	6 50 23.6	.7715017	1 19.4	348 23 17.2	1 13 35.7	.6964957
18	23 7 28.95	6 44 51.8	.7718366	1 16.4	348 28 44.6	1 13 38.3	.6964822
19	23 8 21.90	6 39 19.2	.7721565	1 13.3	348 34 12.0	1 13 40.9	.6964688
20	23 9 14.94	6 33 45.8	.7724614	1 10.3	348 39 39.4	1 13 43.5	.6964554
21	23 10 8.05	6 28 11.6	.7727512	1 7.2	348 45 6.8	1 13 46.1	.6964421
22	23 11 1.23	6 22 36.8	.7730259	1 4.2	348 50 34.2	1 13 48.7	.6964288
23	23 11 54.48	6 17 1.2	.7732855	1 1.1	348 56 1.7	1 13 51.3	.6964155
24	23 12 47.79	6 11 25.0	.7735299	0 58.1	349 1 29.2	1 13 53.9	.6964023
25	23 13 41.16	6 5 48.2	.7737592	0 55.0	349 6 56.7	1 13 56.4	.6963892
26	23 14 34.57	6 0 10.8	.7739733	0 52.0	349 12 24.2	1 13 59.0	.6963761
27	23 15 28.03	5 54 32.8	.7741723	0 48.9	349 17 51.7	1 14 1.5	.6963630
28	23 16 21.54	5 48 54.4	.7743562	0 45.9	349 23 19.3	1 14 4.0	.6963500
29	23 17 15.08	5 43 15.5	.7745250	0 42.8	349 28 46.8	1 14 6.6	.6963370
Mar. 1	23 18 8.65	5 37 36.2	.7746787	0 39.8	349 34 14.4	1 14 9.1	.6963241
2	23 19 2.24	5 31 56.5	.7748174	0 36.7	349 39 42.0	1 14 11.5	.6963112
3	23 19 55.86	5 26 16.4	.7749410	0 33.7	349 45 9.6	1 14 14.0	.6962984
4	23 20 49.49	5 20 36.1	.7750497	0 30.7	349 50 37.3	1 14 16.5	.6962856
5	23 21 43.13	5 14 55.4	.7751435	0 27.6	349 56 4.9	1 14 19.0	.6962729
6	23 22 36.79	5 9 14.5	.7752223	0 24.6	350 1 32.6	1 14 21.4	.6962602
7	23 23 30.45	5 3 33.4	.7752862	0 21.5	350 7 0.3	1 14 23.8	.6962475
8	23 24 24.11	4 57 52.1	.7753353	0 18.5	350 12 28.0	1 14 26.3	.6962349
9	23 25 17.76	4 52 10.7	.7753696	0 15.5	350 17 55.8	1 14 28.7	.6962224
10	23 26 11.41	4 46 29.2	.7753891	0 12.4	350 23 23.5	1 14 31.1	.6962099
11	23 27 5.04	4 40 47.6	.7753937	0 9.4	350 28 51.3	1 14 33.5	.6961974
12	23 27 58.66	4 35 6.0	.7753834	0 6.3	350 34 19.1	1 14 35.8	.6961850
13	23 28 52.27	4 29 24.3	.7753583	0 3.3	350 39 46.9	1 14 38.2	.6961726
14	23 29 45.86	4 23 42.7	.7753184	{ 0 0.1	350 45 14.8	1 14 40.6	.6961603
15	23 30 39.42	4 18 1.1	.7752636	23 54.2	350 50 42.6	1 14 42.9	.6961480
16	23 31 32.95	4 12 19.6	.7751940	23 51.1	350 56 10.5	1 14 45.3	.6961358
17	23 32 26.45	4 6 38.2	.7751096	23 48.1	351 1 38.4	1 14 47.6	.6961236
18	23 33 19.91	4 0 57.0	.7750102	23 45.0	351 7 6.3	1 14 49.9	.6961115
19	23 34 13.32	3 55 15.9	.7748960	23 42.0	351 12 34.2	1 14 52.2	.6960994
20	23 35 6.69	3 49 35.0	.7747669	23 38.9	351 18 2.1	1 14 54.5	.6960874
21	23 36 0.00	3 43 54.4	.7746229	23 35.9	351 23 30.1	1 14 56.8	.6960754
22	23 36 53.26	3 38 14.1	.7744641	23 32.8	351 28 58.1	1 14 59.0	.6960634
23	23 37 46.45	3 32 34.1	.7742904	23 29.8	351 34 26.1	1 15 1.3	.6960515

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	h m s	South. ° ' "	°	h m	° ' "	South. ° ' "	o
Mar. 23	23 37 46.45	3 32 34.1	7742904	23 29.8	351 34 26.1	1 15 1.3	.6960515
24	23 38 39.58	3 26 54.4	7741020	23 26.7	351 39 54.1	1 15 3.5	.6960396
25	23 39 32.64	3 21 15.2	7738987	23 23.7	351 45 22.1	1 15 5.8	.6960278
26	23 40 25.62	3 15 36.4	7736806	23 20.6	351 50 50.2	1 15 8.0	.6960160
27	23 41 18.52	3 9 58.2	7734477	23 17.6	351 56 18.2	1 15 10.2	.6960043
28	23 42 11.34	3 4 20.4	7732002	23 14.5	352 1 46.3	1 15 12.4	.6959926
29	23 43 4.06	2 58 43.2	7729381	23 11.4	352 7 14.4	1 15 14.6	.6959810
30	23 43 56.69	2 53 6.6	7726613	23 8.4	352 12 42.5	1 15 16.8	.6959694
31	23 44 49.22	2 47 30.7	7723700	23 5.3	352 18 10.7	1 15 19.0	.6959579
Apr. 1	23 45 41.64	2 41 55.4	7720642	23 2.3	352 23 38.8	1 15 21.1	.6959464
2	23 46 33.96	2 36 20.9	7717440	22 59.2	352 29 7.0	1 15 23.3	.6959350
3	23 47 26.16	2 30 47.0	7714094	22 56.1	352 34 35.2	1 15 25.4	.6959236
4	23 48 18.25	2 25 14.0	7710604	22 53.1	352 40 3.4	1 15 27.5	.6959122
5	23 49 10.22	2 19 41.8	7706971	22 50.0	352 45 31.6	1 15 29.6	.6959009
6	23 50 2.07	2 14 10.4	7703194	22 46.9	352 50 59.9	1 15 31.7	.6958897
7	23 50 53.80	2 8 39.9	7699276	22 43.8	352 56 28.1	1 15 33.8	.6958785
8	23 51 45.39	2 3 10.2	7695215	22 40.8	353 1 56.4	1 15 35.9	.6958673
9	23 52 36.86	1 57 41.5	7691012	22 37.7	353 7 24.7	1 15 37.9	.6958562
10	23 53 28.19	1 52 13.7	7686668	22 34.6	353 12 53.0	1 15 40.0	.6958451
11	23 54 19.38	1 46 46.9	7682181	22 31.5	353 18 21.4	1 15 42.0	.6958341
12	23 55 10.42	1 41 21.1	7677553	22 28.4	353 23 49.7	1 15 44.1	.6958232
13	23 56 1.32	1 35 56.4	7672783	22 25.3	353 29 18.1	1 15 46.1	.6958123
14	23 56 52.07	1 30 32.7	7667871	22 22.2	353 34 46.5	1 15 48.1	.6958014
15	23 57 42.66	1 25 10.2	7662818	22 19.1	353 40 14.9	1 15 50.1	.6957905
16	23 58 33.09	1 19 48.8	7657623	22 16.0	353 45 43.3	1 15 52.1	.6957797
17	23 59 23.35	1 14 28.7	7652288	22 12.9	353 51 11.7	1 15 54.0	.6957690
18	0 0 13.44	1 9 9.8	7646812	22 9.8	353 56 40.2	1 15 56.0	.6957583
19	0 0 13.36	1 3 52.2	7641196	22 6.7	354 2 8.7	1 15 57.9	.6957477
20	0 1 53.09	0 58 35.8	7635440	22 3.7	354 7 37.2	1 15 59.9	.6957371
21	0 2 42.63	0 53 20.9	7629544	22 0.6	354 13 5.7	1 16 1.8	.6957265
22	0 3 31.98	0 48 7.3	7623509	21 57.5	354 18 34.2	1 16 3.7	.6957160
23	0 4 21.14	0 42 55.2	7617335	21 54.4	354 24 2.8	1 16 5.6	.6957055
24	0 5 10.10	0 37 44.5	7611023	21 51.2	354 29 31.4	1 16 7.5	.6956951
25	0 5 58.85	0 32 35.3	7604573	21 48.0	354 34 59.9	1 16 9.4	.6956848
26	0 6 47.38	0 27 27.7	7597986	21 44.9	354 40 28.5	1 16 11.3	.6956745
27	0 7 35.70	0 22 21.6	7591263	21 41.8	354 45 57.2	1 16 13.1	.6956642
28	0 8 23.80	0 17 17.2	7584404	21 38.6	354 51 25.8	1 16 15.0	.6956540
29	0 9 11.67	0 12 14.5	7577411	21 35.5	354 56 54.4	1 16 16.8	.6956438
30	0 9 59.31	0 7 13.4	7570284	21 32.3	355 2 23.1	1 16 18.6	.6956337
May 1	0 10 46.71	0 2 14.1	7563025	21 29.2	355 7 51.8	1 16 20.4	.6956236
		North.					
2	0 11 33.88	0 2 43.6	7555633	21 26.0	355 13 20.5	1 16 22.2	.6956136
3	0 12 20.80	0 7 39.4	7548109	21 22.9	355 18 49.2	1 16 24.0	.6956037

MEAN TIME.

		Geocentric.				Heliocentric.			
Month and Day.	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.		
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.		
		North.	°	h m	South.		°		
		° ' "			° ' "				
May 3	0 12 20.80	0 7 39.4	.7548109	21 24.9	355 18 49.2	1 16 24.0	.6956037		
4	0 13 7.48	0 12 33.4	.7540455	21 19.7	355 24 17.9	1 16 25.8	.6955937		
5	0 13 53.90	0 17 25.5	.7532669	21 16.6	355 29 46.7	1 16 27.5	.6955838		
6	0 14 40.07	0 22 15.8	.7524754	21 13.4	355 35 15.4	1 16 29.3	.6955740		
7	0 15 25.98	0 27 4.2	.7516710	21 10.2	355 40 44.2	1 16 31.0	.6955642		
8	0 16 11.63	0 31 50.7	.7508536	21 7.0	355 46 13.0	1 16 32.8	.6955545		
9	0 16 57.01	0 36 35.2	.7500234	21 3.9	355 51 41.8	1 16 34.5	.6955448		
10	0 17 42.12	0 41 17.7	.7491804	21 0.7	355 57 10.7	1 16 36.2	.6955352		
11	0 18 26.95	0 45 58.2	.7483246	20 57.5	356 2 39.5	1 16 37.9	.6955256		
12	0 19 11.50	0 50 36.5	.7474561	20 54.3	356 8 8.4	1 16 39.6	.6955161		
13	0 19 55.76	0 55 12.8	.7465749	20 51.1	356 13 37.3	1 16 41.2	.6955066		
14	0 20 39.72	0 59 46.9	.7456810	20 47.9	356 19 6.2	1 16 42.9	.6954971		
15	0 21 23.39	1 4 18.8	.7447745	20 44.7	356 24 35.1	1 16 44.5	.6954877		
16	0 22 6.75	1 8 48.5	.7438555	20 41.4	356 30 4.0	1 16 46.2	.6954784		
17	0 22 49.80	1 13 16.0	.7429240	20 38.2	356 35 32.9	1 16 47.8	.6954691		
18	0 23 32.53	1 17 41.1	.7419801	20 35.0	356 41 1.9	1 16 49.4	.6954598		
19	0 24 14.94	1 22 3.9	.7410239	20 31.8	356 46 30.9	1 16 51.0	.6954506		
20	0 24 57.02	1 26 24.3	.7400555	20 28.5	356 51 59.9	1 16 52.6	.6954414		
21	0 25 38.76	1 30 42.3	.7390750	20 25.3	356 57 28.9	1 16 54.2	.6954323		
22	0 26 20.17	1 34 57.8	.7380824	20 22.0	357 2 57.9	1 16 55.7	.6954232		
23	0 27 1.22	1 39 10.8	.7370780	20 18.8	357 8 27.0	1 16 57.3	.6954142		
24	0 27 41.92	1 43 21.2	.7360618	20 15.5	357 13 56.0	1 16 58.8	.6954052		
25	0 28 22.26	1 47 29.1	.7350339	20 12.2	357 19 25.1	1 17 0.4	.6953963		
26	0 29 2.23	1 51 34.3	.7339946	20 9.0	357 24 54.2	1 17 1.9	.6953875		
27	0 29 41.83	1 55 36.9	.7329438	20 5.7	357 30 23.3	1 17 3.4	.6953787		
28	0 30 21.06	1 59 36.8	.7318818	20 2.4	357 35 52.4	1 17 4.9	.6953699		
29	0 30 59.90	2 3 33.9	.7308087	19 59.1	357 41 21.5	1 17 6.4	.6953612		
30	0 31 38.36	2 7 28.4	.7297246	19 55.8	357 46 50.6	1 17 7.9	.6953525		
31	0 32 16.43	2 11 20.1	.7286297	19 52.5	357 52 19.8	1 17 9.3	.6953438		
June 1	0 32 54.10	2 15 8.9	.7275241	19 49.2	357 57 48.9	1 17 10.8	.6953353		
2	0 33 31.37	2 18 54.9	.7264078	19 45.9	358 3 18.1	1 17 12.2	.6953268		
3	0 34 8.23	2 22 38.1	.7252810	19 42.5	358 8 47.3	1 17 13.6	.6953183		
4	0 34 44.68	2 26 18.3	.7241438	19 39.2	358 14 16.5	1 17 15.1	.6953099		
5	0 35 20.71	2 29 55.6	.7229962	19 35.9	358 19 45.7	1 17 16.5	.6953015		
6	0 35 56.32	2 33 29.9	.7218384	19 32.5	358 25 14.9	1 17 17.9	.6952932		
7	0 36 31.50	2 37 1.2	.7206705	19 29.2	358 30 44.2	1 17 19.2	.6952849		
8	0 37 6.25	2 40 29.5	.7194926	19 25.8	358 36 13.5	1 17 20.6	.6952767		
9	0 37 40.55	2 43 54.6	.7183049	19 22.4	358 41 42.7	1 17 22.0	.6952685		
10	0 38 14.41	2 47 16.6	.7171074	19 19.0	358 47 12.0	1 17 23.3	.6952604		
11	0 38 47.81	2 50 35.5	.7159004	19 15.7	358 52 41.3	1 17 24.6	.6952523		
12	0 39 20.75	2 53 51.2	.7146840	19 12.3	358 58 10.6	1 17 26.0	.6952443		
13	0 39 53.22	2 57 3.6	.7134583	19 8.9	359 3 40.0	1 17 27.3	.6952363		

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div>North.</div> <div>° ' "</div> <div>°</div> </div>							
<div> <div>h m s</div> <div>h m</div> <div>° ' "</div> <div>°</div> </div>							
June 13	0 39 53.22	2 57 3.6	7134583	19 8.9	359 340.0	1 17 27.3	6952363
14	0 40 25.22	3 0 12.8	7122234	19 5.5	359 9 9.3	1 17 28.6	6952284
15	0 40 56.74	3 3 18.6	7109795	19 2.1	359 14 38.7	1 17 29.9	6952205
16	0 41 27.76	3 6 21.1	7097268	18 58.6	359 20 8.0	1 17 31.1	6952127
17	0 41 58.29	3 9 20.2	7084655	18 55.2	359 25 37.4	1 17 32.4	6952049
18	0 42 28.32	3 12 15.9	7071957	18 51.8	359 31 6.8	1 17 33.7	6951972
19	0 42 57.83	3 15 8.1	7059176	18 48.3	359 36 36.2	1 17 34.9	6951895
20	0 43 26.83	3 17 56.7	7046316	18 44.8	359 42 5.6	1 17 36.1	6951819
21	0 43 55.30	3 20 41.9	7033378	18 41.4	359 47 35.1	1 17 37.3	6951743
22	0 44 23.25	3 23 23.4	7020365	18 37.9	359 53 4.5	1 17 38.5	6951668
23	0 44 50.65	3 26 1.3	7007279	18 34.4	359 58 33.9	1 17 39.7	6951593
24	0 45 17.51	3 28 35.6	6994124	18 30.9	0 4 3.4	1 17 40.9	6951519
25	0 45 43.82	3 31 6.1	6980900	18 27.4	0 9 32.9	1 17 42.1	6951446
26	0 46 9.57	3 33 33.0	6967611	18 23.9	0 15 2.4	1 17 43.2	6951373
27	0 46 34.76	3 35 56.1	6954259	18 20.4	0 20 31.8	1 17 44.4	6951300
28	0 46 59.39	3 38 15.3	6940846	18 16.9	0 26 1.3	1 17 45.5	6951228
29	0 47 23.44	3 40 30.8	6927375	18 13.3	0 31 30.9	1 17 46.6	6951156
30	0 47 46.92	3 42 42.4	6913848	18 9.8	0 37 0.4	1 17 47.7	6951085
July 1	0 48 9.81	3 44 50.2	6900268	18 6.2	0 42 29.9	1 17 48.8	6951015
2	0 48 32.12	3 46 54.1	6886637	18 2.6	0 47 59.4	1 17 49.9	6950945
3	0 48 53.84	3 48 54.1	6872958	17 59.1	0 53 29.0	1 17 51.0	6950875
4	0 49 14.96	3 50 50.1	6859233	17 55.5	0 58 58.6	1 17 52.1	6950806
5	0 49 35.47	3 52 42.1	6845465	17 51.9	1 4 28.1	1 17 53.1	6950738
6	0 49 55.37	3 54 30.1	6831657	17 48.3	1 9 57.7	1 17 54.2	6950670
7	0 50 14.65	3 56 14.1	6817812	17 44.7	1 15 27.3	1 17 55.2	6950602
8	0 50 33.30	3 57 54.0	6803931	17 41.0	1 20 56.9	1 17 56.2	6950535
9	0 50 51.33	3 59 29.7	6790018	17 37.4	1 26 26.5	1 17 57.2	6950469
10	0 51 8.72	4 1 1.3	6776076	17 33.7	1 31 56.1	1 17 58.2	6950403
11	0 51 25.47	4 2 28.8	6762108	17 30.0	1 37 25.8	1 17 59.2	6950337
12	0 51 41.57	4 3 52.1	6748116	17 26.4	1 42 55.4	1 18 0.1	6950272
13	0 51 57.01	4 5 11.1	6734104	17 22.7	1 48 25.1	1 18 1.1	6950208
14	0 52 11.79	4 6 25.9	6720076	17 19.0	1 53 54.7	1 18 2.0	6950144
15	0 52 25.91	4 7 36.4	6706035	17 15.3	1 59 24.4	1 18 3.0	6950080
16	0 52 39.34	4 8 42.5	6691986	17 11.6	2 4 54.1	1 18 3.9	6950017
17	0 52 52.10	4 9 44.4	6677931	17 7.9	2 10 23.8	1 18 4.8	6949955
18	0 53 4.17	4 10 41.8	6663876	17 4.1	2 15 53.5	1 18 5.7	6949893
19	0 53 15.55	4 11 34.9	6649824	17 0.4	2 21 23.2	1 18 6.6	6949832
20	0 53 26.23	4 12 23.5	6635781	16 56.6	2 26 52.9	1 18 7.5	6949771
21	0 53 36.21	4 13 7.6	6621750	16 52.8	2 32 22.6	1 18 8.3	6949711
22	0 53 45.49	4 13 47.3	6607735	16 49.0	2 37 52.3	1 18 9.2	6949651
23	0 53 54.06	4 14 22.5	6593742	16 45.2	2 43 22.1	1 18 10.0	6949592
24	0 54 1.92	4 14 53.2	6579775	16 41.4	2 48 51.8	1 18 10.8	6949534

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div>North.</div> <div>° ' "</div> <div>°</div> </div>							
<div> <div>h m s</div> <div>h m</div> <div>° ' "</div> <div>°</div> </div>							
July 24	0 54 1 ^h 92	4 14 53 ^h 2	6579775	16 41 ^h 4	2 48 51 ^h 8	1 18 10 ^h 8	6949534
25	0 54 9 ^h 07	4 15 19 ^h 4	6565839	16 37 ^h 6	2 54 21 ^h 6	1 18 11 ^h 6	6949476
26	0 54 15 ^h 51	4 15 41 ^h 2	6551937	16 33 ^h 8	2 59 51 ^h 3	1 18 12 ^h 4	6949418
27	0 54 21 ^h 22	4 15 58 ^h 4	6538074	16 29 ^h 9	3 5 21 ^h 1	1 18 13 ^h 2	6949361
28	0 54 26 ^h 22	4 16 11 ^h 0	6524254	16 26 ^h 1	3 10 50 ^h 8	1 18 14 ^h 0	6949304
29	0 54 30 ^h 49	4 16 19 ^h 2	6510481	16 22 ^h 2	3 16 20 ^h 6	1 18 14 ^h 8	6949248
30	0 54 34 ^h 05	4 16 22 ^h 8	6496760	16 18 ^h 3	3 21 50 ^h 4	1 18 15 ^h 5	6949192
31	0 54 36 ^h 88	4 16 21 ^h 9	6483096	16 14 ^h 4	3 27 20 ^h 2	1 18 16 ^h 3	6949137
Aug. 1	0 54 38 ^h 98	4 16 16 ^h 5	6469492	16 10 ^h 5	3 32 50 ^h 0	1 18 17 ^h 0	6949082
2	0 54 40 ^h 36	4 16 6 ^h 6	6455955	16 6 ^h 6	3 38 19 ^h 8	1 18 17 ^h 7	6949028
3	0 54 41 ^h 01	4 15 52 ^h 1	6442489	16 2 ^h 7	3 43 49 ^h 6	1 18 18 ^h 4	6948974
4	0 54 40 ^h 92	4 15 33 ^h 1	6429098	15 58 ^h 7	3 49 19 ^h 4	1 18 19 ^h 1	6948921
5	0 54 40 ^h 11	4 15 9 ^h 6	6415788	15 54 ^h 8	3 54 49 ^h 2	1 18 19 ^h 8	6948869
6	0 54 38 ^h 56	4 14 41 ^h 5	6402563	15 50 ^h 8	4 0 19 ^h 1	1 18 20 ^h 5	6948817
7	0 54 36 ^h 28	4 14 9 ^h 0	6389429	15 46 ^h 9	4 5 48 ^h 9	1 18 21 ^h 1	6948765
8	0 54 33 ^h 26	4 13 31 ^h 8	6376390	15 42 ^h 9	4 11 18 ^h 8	1 18 21 ^h 8	6948714
9	0 54 29 ^h 51	4 12 50 ^h 2	6363451	15 38 ^h 9	4 16 48 ^h 6	1 18 22 ^h 4	6948664
10	0 54 25 ^h 02	4 12 4 ^h 0	6350619	15 34 ^h 9	4 22 18 ^h 5	1 18 23 ^h 0	6948614
11	0 54 19 ^h 80	4 11 13 ^h 3	6337897	15 30 ^h 8	4 27 48 ^h 3	1 18 23 ^h 6	6948564
12	0 54 13 ^h 84	4 10 18 ^h 2	6325291	15 26 ^h 8	4 33 18 ^h 2	1 18 24 ^h 2	6948515
13	0 54 7 ^h 15	4 9 18 ^h 6	6312809	15 22 ^h 7	4 38 48 ^h 1	1 18 24 ^h 8	6948467
14	0 53 59 ^h 73	4 8 14 ^h 5	6300456	15 18 ^h 7	4 44 18 ^h 0	1 18 25 ^h 4	6948419
15	0 53 51 ^h 59	4 7 6 ^h 0	6288238	15 14 ^h 6	4 49 47 ^h 9	1 18 26 ^h 0	6948371
16	0 53 42 ^h 72	4 5 53 ^h 1	6276161	15 10 ^h 5	4 55 17 ^h 8	1 18 26 ^h 5	6948324
17	0 53 33 ^h 13	4 4 35 ^h 8	6264232	15 6 ^h 4	5 0 47 ^h 7	1 18 27 ^h 0	6948277
18	0 53 22 ^h 82	4 3 14 ^h 2	6252456	15 2 ^h 3	5 6 17 ^h 6	1 18 27 ^h 6	6948231
19	0 53 11 ^h 81	4 1 48 ^h 3	6240839	14 58 ^h 2	5 11 47 ^h 5	1 18 28 ^h 1	6948185
20	0 53 0 ^h 09	4 0 18 ^h 2	6229388	14 54 ^h 0	5 17 17 ^h 5	1 18 28 ^h 6	6948140
21	0 52 47 ^h 67	3 58 43 ^h 9	6218108	14 49 ^h 9	5 22 47 ^h 4	1 18 29 ^h 1	6948095
22	0 52 34 ^h 57	3 57 5 ^h 4	6207005	14 45 ^h 7	5 28 17 ^h 3	1 18 29 ^h 5	6948051
23	0 52 20 ^h 79	3 55 22 ^h 8	6196086	14 41 ^h 6	5 33 47 ^h 3	1 18 30 ^h 0	6948007
24	0 52 6 ^h 33	3 53 36 ^h 2	6185356	14 37 ^h 4	5 39 17 ^h 2	1 18 30 ^h 5	6947964
25	0 51 51 ^h 21	3 51 45 ^h 6	6174820	14 33 ^h 2	5 44 47 ^h 1	1 18 30 ^h 9	6947921
26	0 51 35 ^h 43	3 49 51 ^h 1	6164484	14 29 ^h 0	5 50 17 ^h 1	1 18 31 ^h 3	6947879
27	0 51 19 ^h 01	3 47 52 ^h 7	6154352	14 24 ^h 8	5 55 47 ^h 1	1 18 31 ^h 8	6947837
28	0 51 1 ^h 95	3 45 50 ^h 6	6144431	14 20 ^h 6	6 1 17 ^h 0	1 18 32 ^h 2	6947796
29	0 50 44 ^h 27	3 43 44 ^h 8	6134725	14 16 ^h 3	6 6 47 ^h 0	1 18 32 ^h 6	6947755
30	0 50 25 ^h 97	3 41 35 ^h 4	6125240	14 12 ^h 1	6 12 17 ^h 0	1 18 32 ^h 9	6947715
31	0 50 7 ^h 06	3 39 22 ^h 5	6115981	14 7 ^h 8	6 17 46 ^h 9	1 18 33 ^h 3	6947675
Sept. 1	0 49 47 ^h 57	3 37 6 ^h 0	6106954	14 3 ^h 6	6 23 16 ^h 9	1 18 33 ^h 7	6947636
2	0 49 27 ^h 49	3 34 46 ^h 2	6098163	13 59 ^h 3	6 28 46 ^h 9	1 18 34 ^h 0	6947597
3	0 49 6 ^h 85	3 32 23 ^h 0	6089614	13 55 ^h 0	6 34 16 ^h 9	1 18 34 ^h 3	6947559

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div> <div>North.</div> <div>° ' "</div> </div> <div> <div>o</div> <div></div> </div> <div> <div>South.</div> <div>° ' "</div> </div> <div> <div>o</div> <div></div> </div> </div>							
Sept. 3	^h 0 49 ^m 6 ^s 85	3 32 23 0	6089614	^h 13 55 0	6 34 16 9	1 18 34 3	6947559
4	0 48 45 65	3 29 56 6	6081312	13 50 8	6 39 46 9	1 18 34 7	6947521
5	0 48 23 90	3 27 26 9	6073261	13 46 5	6 45 16 9	1 18 35 0	6947484
6	0 48 1 62	3 24 54 3	6065469	13 42 1	6 50 46 9	1 18 35 3	6947448
7	0 47 38 82	3 22 18 6	6057938	13 37 8	6 56 17 0	1 18 35 6	6947412
8	0 47 15 52	3 19 40 1	6050674	13 33 5	7 1 47 0	1 18 35 8	6947376
9	0 46 51 72	3 16 58 8	6043683	13 29 2	7 7 17 0	1 18 36 1	6947340
10	0 46 27 45	3 14 14 8	6036968	13 24 8	7 12 47 1	1 18 36 3	6947306
11	0 46 2 71	3 11 28 3	6030534	13 20 5	7 18 17 1	1 18 36 6	6947272
12	0 45 37 54	3 8 39 3	6024388	13 16 1	7 23 47 1	1 18 36 8	6947238
13	0 45 11 94	3 5 48 0	6018533	13 11 8	7 29 17 2	1 18 37 0	6947205
14	0 44 45 94	3 2 54 4	6012974	13 7 4	7 34 47 2	1 18 37 2	6947172
15	0 44 19 55	2 59 58 8	6007715	13 3 1	7 40 17 3	1 18 37 4	6947140
16	0 43 52 79	2 57 1 2	6002761	12 58 7	7 45 47 4	1 18 37 6	6947108
17	0 43 25 69	2 54 1 7	5998115	12 54 3	7 51 17 4	1 18 37 7	6947077
18	0 42 58 26	2 51 0 6	5993781	12 49 9	7 56 47 5	1 18 37 9	6947046
19	0 42 30 53	2 47 58 0	5989761	12 45 5	8 2 17 6	1 18 38 0	6947016
20	0 42 2 52	2 44 53 9	5986059	12 41 1	8 7 47 7	1 18 38 1	6946986
21	0 41 34 25	2 41 48 5	5982677	12 36 7	8 13 17 7	1 18 38 2	6946957
22	0 41 5 74	2 38 42 0	5979619	12 32 3	8 18 47 8	1 18 38 3	6946929
23	0 40 37 01	2 35 34 5	5976885	12 27 9	8 24 17 9	1 18 38 4	6946901
24	0 40 8 09	2 32 26 2	5974478	12 23 5	8 29 48 0	1 18 38 5	6946873
25	0 39 39 00	2 29 17 1	5972398	12 19 1	8 35 18 1	1 18 38 6	6946846
26	0 39 9 75	2 26 7 5	5970648	12 14 6	8 40 48 2	1 18 38 6	6946820
27	0 38 40 37	2 22 57 5	5969228	12 10 2	8 46 18 3	1 18 38 7	6946794
28	0 38 10 89	2 19 47 2	5968139	12 5 8	8 51 48 4	1 18 38 7	6946768
29	0 37 41 32	2 16 36 9	5967383	12 1 4	8 57 18 5	1 18 38 7	6946743
30	0 37 11 69	2 13 26 5	5966959	11 57 0	9 2 48 7	1 18 38 7	6946718
Oct. 1	0 36 42 02	2 10 16 3	5966869	11 52 5	9 8 18 8	1 18 38 7	6946694
2	0 36 12 32	2 7 6 4	5967114	11 48 1	9 13 48 9	1 18 38 7	6946671
3	0 35 42 63	2 3 56 9	5967692	11 43 7	9 19 19 0	1 18 38 6	6946648
4	0 35 12 96	2 0 48 0	5968604	11 39 2	9 24 49 2	1 18 38 6	6946625
5	0 34 43 34	1 57 39 8	5969850	11 34 8	9 30 19 3	1 18 38 5	6946603
6	0 34 13 79	1 54 32 5	5971430	11 30 4	9 35 49 4	1 18 38 5	6946582
7	0 33 44 32	1 51 26 2	5973343	11 26 0	9 41 19 6	1 18 38 4	6946561
8	0 33 14 97	1 48 21 1	5975588	11 21 6	9 46 49 7	1 18 38 3	6946541
9	0 32 45 75	1 45 17 3	5978165	11 17 2	9 52 19 9	1 18 38 2	6946521
10	0 32 16 68	1 42 14 9	5981073	11 12 7	9 57 50 1	1 18 38 1	6946501
11	0 31 47 79	1 39 14 0	5984310	11 8 3	10 3 20 2	1 18 37 9	6946482
12	0 31 19 11	1 36 14 9	5987874	11 3 9	10 8 50 4	1 18 37 8	6946464
13	0 30 50 66	1 33 17 7	5991764	10 59 5	10 14 20 5	1 18 37 7	6946446
14	0 30 22 45	1 30 22 5	5995978	10 55 1	10 19 50 7	1 18 37 5	6946428

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>North. ° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>South. ° ' "</i>	<i>°</i>
Oct. 14	0 30 22.45	1 30 22.5	.5995978	10 55.1	10 19 50.7	1 18 37.5	.6946428
15	0 29 54.51	1 27 29.4	.6000512	10 50.7	10 25 20.9	1 18 37.3	.6946412
16	0 29 26.87	1 24 38.7	.6005366	10 46.4	10 30 51.1	1 18 37.1	.6946396
17	0 28 59.54	1 21 50.3	.6010535	10 42.0	10 36 21.3	1 18 36.9	.6946380
18	0 28 32.54	1 19 4.6	.6016015	10 37.6	10 41 51.5	1 18 36.7	.6946365
19	0 28 5.91	1 16 21.6	.6021803	10 33.2	10 47 21.7	1 18 36.5	.6946350
20	0 27 39.65	1 13 41.4	.6027895	10 28.9	10 52 51.9	1 18 36.3	.6946336
21	0 27 13.78	1 11 4.1	.6034287	10 24.5	10 58 22.1	1 18 36.0	.6946322
22	0 26 48.34	1 8 29.9	.6040975	10 20.2	11 3 52.3	1 18 35.8	.6946309
23	0 26 23.34	1 5 58.9	.6047953	10 15.8	11 9 22.5	1 18 35.5	.6946296
24	0 25 58.78	1 3 31.2	.6055218	10 11.5	11 14 52.7	1 18 35.2	.6946284
25	0 25 34.70	1 1 6.9	.6062765	10 7.2	11 20 22.9	1 18 34.9	.6946272
26	0 25 11.00	0 58 46.1	.6070588	10 2.8	11 25 53.1	1 18 34.6	.6946261
27	0 24 48.00	0 56 28.9	.6078683	9 58.5	11 31 23.3	1 18 34.3	.6946251
28	0 24 25.42	0 54 15.4	.6087044	9 54.2	11 36 53.5	1 18 34.0	.6946241
29	0 24 3.38	0 52 5.7	.6095667	9 49.9	11 42 23.7	1 18 33.6	.6946231
30	0 23 41.88	0 49 59.8	.6104547	9 45.6	11 47 54.0	1 18 33.3	.6946222
31	0 23 20.94	0 47 57.9	.6113678	9 41.4	11 53 24.2	1 18 32.9	.6946213
Nov. 1	0 23 0.58	0 46 0.1	.6123055	9 37.1	11 58 54.4	1 18 32.5	.6946205
2	0 22 40.81	0 44 6.4	.6132673	9 32.9	12 4 24.6	1 18 32.1	.6946198
3	0 22 21.63	0 42 16.8	.6142526	9 28.6	12 9 54.9	1 18 31.7	.6946191
4	0 22 3.07	0 40 31.6	.6152610	9 24.4	12 15 25.1	1 18 31.3	.6946184
5	0 21 45.13	0 38 50.6	.6162918	9 20.1	12 20 55.3	1 18 30.9	.6946178
6	0 21 27.83	0 37 14.0	.6173447	9 15.9	12 26 25.6	1 18 30.4	.6946173
7	0 21 11.17	0 35 41.9	.6184190	9 11.7	12 31 55.8	1 18 30.0	.6946168
8	0 20 55.17	0 34 14.3	.6195142	9 7.5	12 37 26.1	1 18 29.5	.6946164
9	0 20 39.84	0 32 51.3	.6206298	9 3.3	12 42 56.3	1 18 29.1	.6946160
10	0 20 25.18	0 31 32.8	.6217652	8 59.2	12 48 26.6	1 18 28.6	.6946157
11	0 20 11.21	0 30 19.1	.6229197	8 55.0	12 53 56.8	1 18 28.1	.6946154
12	0 19 57.95	0 29 10.2	.6240928	8 50.9	12 59 27.1	1 18 27.6	.6946152
13	0 19 45.39	0 28 6.0	.6252838	8 46.7	13 4 57.3	1 18 27.0	.6946150
14	0 19 33.55	0 27 6.6	.6264921	8 42.6	13 10 27.6	1 18 26.5	.6946148
15	0 19 22.44	0 26 12.1	.6277172	8 38.5	13 15 57.9	1 18 25.9	.6946147
16	0 19 12.05	0 25 22.6	.6289583	8 34.4	13 21 28.1	1 18 25.4	.6946147
17	0 19 2.41	0 24 38.0	.6302148	8 30.3	13 26 58.4	1 18 24.8	.6946147
18	0 18 53.51	0 23 58.3	.6314861	8 26.2	13 32 28.7	1 18 24.2	.6946148
19	0 18 45.35	0 23 23.6	.6327715	8 22.2	13 37 59.0	1 18 23.6	.6946150
20	0 18 37.94	0 22 54.0	.6340705	8 18.1	13 43 29.2	1 18 23.0	.6946152
21	0 18 31.29	0 22 29.4	.6353822	8 14.1	13 48 59.5	1 18 22.4	.6946154
22	0 18 25.40	0 22 9.8	.6367061	8 10.1	13 54 29.8	1 18 21.7	.6946157
23	0 18 20.27	0 21 55.3	.6380417	8 6.1	14 0 0.1	1 18 21.1	.6946160
24	0 18 15.90	0 21 45.7	.6393883	8 2.1	14 5 30.3	1 18 20.4	.6946164

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>North.</i> <i>° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>South.</i> <i>° ' "</i>	<i>°</i>
Nov. 24	0 18 15.90	0 21 45.7	6393883	8 2.1	14 5 30.3	1 18 20.4	6946164
25	0 18 12.29	0 21 41.2	6407454	7 58.1	14 11 0.6	1 18 19.8	6946168
26	0 18 9.44	0 21 41.8	6421123	7 54.1	14 16 30.9	1 18 19.1	6946173
27	0 18 7.36	0 21 47.4	6434885	7 50.1	14 22 1.2	1 18 18.4	6946178
28	0 18 6.03	0 21 58.0	6448734	7 46.2	14 27 31.4	1 18 17.7	6946184
29	0 18 5.47	0 22 13.6	6462665	7 42.2	14 33 1.7	1 18 17.0	6946191
30	0 18 5.67	0 22 34.2	6476674	7 38.3	14 38 32.0	1 18 16.2	6946198
Dec. 1	0 18 6.64	0 22 59.8	6490753	7 34.4	14 44 2.3	1 18 15.5	6946205
2	0 18 8.36	0 23 30.4	6504899	7 30.5	14 49 32.5	1 18 14.7	6946213
3	0 18 10.84	0 24 5.9	6519106	7 26.6	14 55 2.8	1 18 14.0	6946222
4	0 18 14.08	0 24 46.4	6533369	7 22.7	15 0 33.1	1 18 13.2	6946231
5	0 18 18.08	0 25 31.8	6547684	7 18.9	15 6 3.3	1 18 12.4	6946241
6	0 18 22.84	0 26 22.2	6562044	7 15.0	15 11 33.6	1 18 11.6	6946251
7	0 18 28.35	0 27 17.4	6576447	7 11.2	15 17 3.9	1 18 10.8	6946261
8	0 18 34.61	0 28 17.5	6590886	7 7.4	15 22 34.2	1 18 9.9	6946272
9	0 18 41.63	0 29 22.4	6605358	7 3.6	15 28 4.4	1 18 9.1	6946284
10	0 18 49.39	0 30 32.2	6619857	6 59.8	15 33 34.7	1 18 8.2	6946296
11	0 18 57.90	0 31 46.7	6634378	6 56.0	15 39 5.0	1 18 7.4	6946309
12	0 19 7.16	0 33 6.0	6648917	6 52.2	15 44 35.3	1 18 6.5	6946322
13	0 19 17.15	0 34 30.1	6663468	6 48.4	15 50 5.5	1 18 5.6	6946336
14	0 19 27.88	0 35 58.9	6678026	6 44.7	15 55 35.8	1 18 4.7	6946350
15	0 19 39.35	0 37 32.4	6692587	6 40.9	16 1 6.1	1 18 3.8	6946365
16	0 19 51.55	0 39 10.6	6707145	6 37.2	16 6 36.3	1 18 2.9	6946380
17	0 20 4.47	0 40 53.4	6721697	6 33.5	16 12 6.6	1 18 1.9	6946396
18	0 20 18.10	0 42 40.7	6736238	6 29.8	16 17 36.9	1 18 1.0	6946412
19	0 20 32.45	0 44 32.6	6750764	6 26.1	16 23 7.1	1 18 0.0	6946429
20	0 20 47.51	0 46 29.0	6765270	6 22.4	16 28 37.4	1 17 59.1	6946446
21	0 21 3.27	0 48 29.8	6779751	6 18.7	16 34 7.6	1 17 58.1	6946464
22	0 21 19.72	0 50 35.0	6794204	6 15.1	16 39 37.9	1 17 57.1	6946483
23	0 21 36.85	0 52 44.6	6808625	6 11.5	16 45 8.1	1 17 56.1	6946502
24	0 21 54.67	0 54 58.4	6823011	6 7.8	16 50 38.3	1 17 55.1	6946521
25	0 22 13.16	0 57 16.5	6837359	6 4.2	16 56 8.6	1 17 54.0	6946541
26	0 22 32.32	0 59 38.8	6851665	6 0.6	17 1 38.8	1 17 53.0	6946561
27	0 22 52.14	1 2 5.3	6865926	5 57.0	17 7 9.0	1 17 51.9	6946582
28	0 23 12.61	1 4 35.9	6880139	5 53.4	17 12 39.3	1 17 50.9	6946604
29	0 23 33.73	1 7 10.5	6894300	5 49.8	17 18 9.5	1 17 49.8	6946626
30	0 23 55.49	1 9 49.2	6908408	5 46.3	17 23 39.7	1 17 48.7	6946648
31	0 24 17.89	1 12 31.8	6922459	5 42.7	17 29 9.9	1 17 47.6	6946671
32	0 24 40.91	1 15 18.3	6936449	5 39.2	17 34 40.1	1 17 46.5	6946695

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div>h m s</div> <div>° ' "</div> <div>° ' "</div> <div>h m</div> <div>° ' "</div> <div>° ' "</div> <div>°</div> </div>							
Jan. 1	15 59 27.73	18 38 31.4	0.295811	21 14.6	238 1 58.7	2 1 39.9	.9981955
2	15 59 52.85	18 39 39.8	0.291516	21 11.1	238 3 49.2	2 1 37.1	.9982025
3	16 0 17.77	18 40 47.3	0.287134	21 7.6	238 5 39.7	2 1 34.4	.9982096
4	16 0 42.49	18 41 53.7	0.282664	21 4.1	238 7 30.2	2 1 31.6	.9982167
5	16 1 6.98	18 42 59.2	0.278110	21 0.5	238 9 20.7	2 1 28.8	.9982237
6	16 1 31.26	18 44 3.7	0.273470	20 57.0	238 11 11.2	2 1 26.0	.9982307
7	16 1 55.32	18 45 7.2	0.268746	20 53.5	238 13 1.7	2 1 23.2	.9982378
8	16 2 19.15	18 46 9.7	0.263940	20 49.9	238 14 52.2	2 1 20.4	.9982448
9	16 2 42.76	18 47 11.2	0.259052	20 46.4	238 16 42.6	2 1 17.6	.9982518
10	16 3 6.13	18 48 11.7	0.254083	20 42.8	238 18 33.1	2 1 14.8	.9982588
11	16 3 29.25	18 49 11.1	0.249093	20 39.3	238 20 23.6	2 1 12.0	.9982659
12	16 3 52.14	18 50 9.6	0.243903	20 35.7	238 22 14.1	2 1 9.2	.9982729
13	16 4 14.77	18 51 7.0	0.238695	20 32.2	238 24 4.5	2 1 6.4	.9982799
14	16 4 37.16	18 52 3.4	0.233409	20 28.6	238 25 55.0	2 1 3.6	.9982869
15	16 4 59.28	18 52 58.7	0.228047	20 25.0	238 27 45.4	2 1 0.8	.9982938
16	16 5 21.15	18 53 53.0	0.222608	20 21.5	238 29 35.9	2 0 58.0	.9983008
17	16 5 42.74	18 54 46.3	0.217094	20 17.9	238 31 26.3	2 0 55.2	.9983078
18	16 6 4.07	18 55 38.5	0.211507	20 14.3	238 33 16.8	2 0 52.4	.9983148
19	16 6 25.11	18 56 29.7	0.205847	20 10.7	238 35 7.2	2 0 49.6	.9983217
20	16 6 45.87	18 57 19.8	0.200114	20 7.1	238 36 57.6	2 0 46.8	.9983287
21	16 7 6.35	18 58 8.8	0.194311	20 3.5	238 38 48.0	2 0 44.0	.9983356
22	16 7 26.53	18 58 56.8	0.188438	19 59.9	238 40 38.5	2 0 41.2	.9983426
23	16 7 46.42	18 59 43.7	0.182498	19 56.3	238 42 28.9	2 0 38.3	.9983495
24	16 8 6.01	19 0 29.5	0.176491	19 52.7	238 44 19.3	2 0 35.5	.9983564
25	16 8 25.29	19 1 14.2	0.170419	19 49.1	238 46 9.7	2 0 32.7	.9983633
26	16 8 44.26	19 1 57.9	0.164283	19 45.5	238 48 0.1	2 0 29.9	.9983703
27	16 9 2.91	19 2 40.4	0.158085	19 41.9	238 49 50.4	2 0 27.0	.9983772
28	16 9 21.25	19 3 21.9	0.151826	19 38.2	238 51 40.8	2 0 24.2	.9983841
29	16 9 39.25	19 4 2.3	0.145507	19 34.6	238 53 31.2	2 0 21.4	.9983910
30	16 9 56.93	19 4 41.6	0.139130	19 30.9	238 55 21.6	2 0 18.5	.9983979
31	16 10 14.28	19 5 19.7	0.132697	19 27.3	238 57 11.9	2 0 15.7	.9984048
Feb. 1	16 10 31.29	19 5 56.8	0.126209	19 23.6	238 59 2.3	2 0 12.9	.9984117
2	16 10 47.97	19 6 32.8	0.119668	19 20.0	239 0 52.7	2 0 10.0	.9984185
3	16 11 4.31	19 7 7.7	0.113076	19 16.3	239 2 43.0	2 0 7.2	.9984254
4	16 11 20.30	19 7 41.4	0.106434	19 12.6	239 4 33.4	2 0 4.3	.9984323
5	16 11 35.94	19 8 14.1	0.099743	19 9.0	239 6 23.7	2 0 1.5	.9984391
6	16 11 51.23	19 8 45.7	0.093005	19 5.3	239 8 14.0	1 59 58.6	.9984460
7	16 12 6.16	19 9 16.2	0.086222	19 1.6	239 10 4.4	1 59 55.8	.9984528
8	16 12 20.74	19 9 45.6	0.079395	18 57.9	239 11 54.7	1 59 52.9	.9984597
9	16 12 34.95	19 10 13.8	0.072526	18 54.2	239 13 45.0	1 59 50.1	.9984665
10	16 12 48.80	19 10 41.0	0.065616	18 50.5	239 15 35.3	1 59 47.2	.9984733
11	16 13 2.29	19 11 7.1	0.058667	18 46.8	239 17 25.7	1 59 44.4	.9984802

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>South.</i> <i>° ' "</i>	<i>1</i>	<i>h m</i>	<i>° ' "</i>	<i>North.</i> <i>° ' "</i>	<i>0</i>
Feb. 11	16 13 2.29	19 11 7.1	.0058667	18 46.8	239 17 25.7	1 59 44.4	.9984802
12	16 13 15.40	19 11 32.1	.0051680	18 43.1	239 19 16.0	1 59 41.5	.9984870
13	16 13 28.13	19 11 56.0	.0044656	18 39.3	239 21 6.3	1 59 38.6	.9984938
14	16 13 40.49	19 12 18.8	.0037598	18 35.6	239 22 56.6	1 59 35.8	.9985006
15	16 13 52.46	19 12 40.5	.0030508	18 31.9	239 24 46.9	1 59 32.9	.9985074
16	16 14 4.05	19 13 1.1	.0023387	18 28.1	239 26 37.1	1 59 30.0	.9985142
17	16 14 15.24	19 13 20.6	.0016236	18 24.4	239 28 27.4	1 59 27.2	.9985210
18	16 14 26.05	19 13 39.0	.0009059	18 20.6	239 30 17.7	1 59 24.3	.9985278
19	16 14 36.46	19 13 56.3	.0001856	18 16.8	239 32 8.0	1 59 21.4	.9985346
			0				
20	16 14 46.48	19 14 12.5	.9994631	18 13.1	239 33 58.2	1 59 18.5	.9985414
21	16 14 56.09	19 14 27.6	.9987384	18 9.3	239 35 48.5	1 59 15.7	.9985482
22	16 15 5.30	19 14 41.6	.9980118	18 5.5	239 37 38.7	1 59 12.8	.9985550
23	16 15 14.11	19 14 54.5	.9972835	18 1.7	239 39 29.0	1 59 9.9	.9985617
24	16 15 22.50	19 15 6.3	.9965537	17 57.9	239 41 19.2	1 59 7.0	.9985685
25	16 15 30.49	19 15 17.0	.9958227	17 54.1	239 43 9.4	1 59 4.1	.9985753
26	16 15 38.06	19 15 26.6	.9950907	17 50.3	239 44 59.7	1 59 1.2	.9985820
27	16 15 45.22	19 15 35.2	.9943579	17 46.5	239 46 49.9	1 58 58.4	.9985888
28	16 15 51.96	19 15 42.6	.9936245	17 42.7	239 48 40.1	1 58 55.5	.9985955
29	16 15 58.29	19 15 49.0	.9928907	17 38.8	239 50 30.3	1 58 52.6	.9986022
Mar. 1	16 16 4.20	19 15 54.3	.9921568	17 35.0	239 52 20.5	1 58 49.7	.9986089
2	16 16 9.69	19 15 58.5	.9914230	17 31.2	239 54 10.7	1 58 46.8	.9986156
3	16 16 14.76	19 16 1.7	.9906895	17 27.3	239 56 0.9	1 58 43.9	.9986224
4	16 16 19.42	19 16 3.8	.9899565	17 23.4	239 57 51.1	1 58 41.0	.9986291
5	16 16 23.65	19 16 4.9	.9892243	17 19.6	239 59 41.3	1 58 38.1	.9986358
6	16 16 27.46	19 16 4.9	.9884929	17 15.7	240 1 31.5	1 58 35.2	.9986425
7	16 16 30.85	19 16 3.8	.9877627	17 11.8	240 3 21.7	1 58 32.3	.9986492
8	16 16 33.82	19 16 1.7	.9870339	17 7.9	240 5 11.9	1 58 29.3	.9986559
9	16 16 36.38	19 15 58.6	.9863067	17 4.0	240 7 2.1	1 58 26.4	.9986626
10	16 16 38.51	19 15 54.4	.9855812	17 0.1	240 8 52.2	1 58 23.5	.9986692
11	16 16 40.22	19 15 49.2	.9848578	16 56.2	240 10 42.4	1 58 20.6	.9986759
12	16 16 41.50	19 15 43.0	.9841366	16 52.3	240 12 32.6	1 58 17.7	.9986826
13	16 16 42.36	19 15 35.8	.9834178	16 48.4	240 14 22.7	1 58 14.8	.9986892
14	16 16 42.80	19 15 27.5	.9827017	16 44.5	240 16 12.9	1 58 11.8	.9986959
15	16 16 42.81	19 15 18.3	.9819884	16 40.5	240 18 3.0	1 58 8.9	.9987025
16	16 16 42.41	19 15 8.0	.9812784	16 36.6	240 19 53.2	1 58 6.0	.9987092
17	16 16 41.58	19 14 56.7	.9805717	16 32.6	240 21 43.3	1 58 3.1	.9987158
18	16 16 40.32	19 14 44.4	.9798687	16 28.7	240 23 33.5	1 58 0.1	.9987224
19	16 16 38.65	19 14 31.1	.9791695	16 24.7	240 25 23.6	1 57 57.2	.9987291
20	16 16 36.56	19 14 16.8	.9784745	16 20.7	240 27 13.7	1 57 54.3	.9987357
21	16 16 34.05	19 14 1.6	.9777839	16 16.7	240 29 3.9	1 57 51.3	.9987423
22	16 16 31.12	19 13 45.4	.9770979	16 12.8	240 30 54.0	1 57 48.4	.9987489
23	16 16 27.78	19 13 28.2	.9764168	16 8.8	240 32 44.1	1 57 45.5	.9987555

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.	•	Noon.	Noon.	Noon.
	<i>h m s</i>	<i>South. ° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>North. ° ' "</i>	<i>°</i>
Mar. 23	16 16 27.78	19 13 28.2	.9764168	16 8.8	240 32 44.1	1 57 45.5	.9987555
24	16 16 24.03	19 13 10.1	.9757409	16 4.8	240 34 34.3	1 57 42.5	.9987621
25	16 16 19.86	19 12 51.0	.9750703	16 0.8	240 36 24.4	1 57 39.6	.9987687
26	16 16 15.28	19 12 30.9	.9744054	15 56.7	240 38 14.5	1 57 36.6	.9987753
27	16 16 10.29	19 12 10.0	.9737465	15 52.7	240 40 4.6	1 57 33.7	.9987819
28	16 16 4.91	19 11 48.1	.9730937	15 48.7	240 41 54.7	1 57 30.7	.9987884
29	16 15 59.12	19 11 25.3	.9724473	15 44.7	240 43 44.8	1 57 27.8	.9987950
30	16 15 52.93	19 11 1.6	.9718075	15 40.6	240 45 34.9	1 57 24.8	.9988016
31	16 15 46.36	19 10 37.0	.9711746	15 36.6	240 47 25.0	1 57 21.9	.9988081
Apr. 1	16 15 39.40	19 10 11.6	.9705489	15 32.6	240 49 15.1	1 57 18.9	.9988147
2	16 15 32.06	19 9 45.3	.9699304	15 28.5	240 51 5.2	1 57 16.0	.9988212
3	16 15 24.33	19 9 18.1	.9693196	15 24.4	240 52 55.3	1 57 13.0	.9988277
4	16 15 16.24	19 8 50.1	.9687165	15 20.4	240 54 45.4	1 57 10.1	.9988343
5	16 15 7.77	19 8 21.3	.9681213	15 16.3	240 56 35.5	1 57 7.1	.9988408
6	16 14 58.93	19 7 51.6	.9675344	15 12.2	240 58 25.6	1 57 4.1	.9988473
7	16 14 49.73	19 7 21.1	.9669559	15 8.1	241 0 15.7	1 57 1.2	.9988538
8	16 14 40.17	19 6 49.8	.9663859	15 4.0	241 2 5.8	1 56 58.2	.9988604
9	16 14 30.26	19 6 17.7	.9658248	14 59.9	241 3 55.8	1 56 55.2	.9988669
10	16 14 19.99	19 5 44.9	.9652727	14 55.8	241 5 45.9	1 56 52.2	.9988733
11	16 14 9.38	19 5 11.3	.9647299	14 51.7	241 7 36.0	1 56 49.3	.9988798
12	16 13 58.43	19 4 36.9	.9641965	14 47.6	241 9 26.0	1 56 46.3	.9988863
13	16 13 47.14	19 4 1.8	.9636727	14 43.5	241 11 16.1	1 56 43.3	.9988928
14	16 13 35.52	19 3 26.0	.9631589	14 39.3	241 13 6.2	1 56 40.3	.9988992
15	16 13 23.58	19 2 49.5	.9626552	14 35.2	241 14 56.2	1 56 37.4	.9989057
16	16 13 11.31	19 2 12.3	.9621618	14 31.1	241 16 46.3	1 56 34.4	.9989122
17	16 12 58.74	19 1 34.4	.9616790	14 26.9	241 18 36.3	1 56 31.4	.9989186
18	16 12 45.85	19 0 55.8	.9612070	14 22.8	241 20 26.4	1 56 28.4	.9989251
19	16 12 32.67	19 0 16.6	.9607460	14 18.6	241 22 16.5	1 56 25.4	.9989315
20	16 12 19.19	18 59 36.8	.9602961	14 14.5	241 24 6.5	1 56 22.4	.9989380
21	16 12 5.43	18 58 56.4	.9598576	14 10.3	241 25 56.6	1 56 19.4	.9989444
22	16 11 51.39	18 58 15.3	.9594308	14 6.1	241 27 46.6	1 56 16.4	.9989508
23	16 11 37.07	18 57 33.7	.9590157	14 2.0	241 29 36.7	1 56 13.4	.9989572
24	16 11 22.49	18 56 51.5	.9586125	13 57.8	241 31 26.7	1 56 10.4	.9989636
25	16 11 7.65	18 56 8.7	.9582215	13 53.6	241 33 16.7	1 56 7.4	.9989700
26	16 10 52.57	18 55 25.4	.9578428	13 49.4	241 35 6.8	1 56 4.4	.9989764
27	16 10 37.24	18 54 41.6	.9574765	13 45.3	241 36 56.8	1 56 1.4	.9989828
28	16 10 21.68	18 53 57.3	.9571228	13 41.1	241 38 46.8	1 55 58.4	.9989892
29	16 10 5.89	18 53 12.6	.9567818	13 36.9	241 40 36.9	1 55 55.4	.9989956
30	16 9 49.89	18 52 27.4	.9564537	13 32.7	241 42 26.9	1 55 52.4	.9990020
May 1	16 9 33.69	18 51 41.8	.9561386	13 28.5	241 44 16.9	1 55 49.4	.9990083
2	16 9 17.29	18 50 55.8	.9558366	13 24.3	241 46 6.9	1 55 46.4	.9990147
3	16 9 0.70	18 50 9.4	.9555478	13 20.0	241 47 57.0	1 55 43.4	.9990210

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
		South.	°	h m	°	North.	°
		h m s	° ' "	° ' "	h m	° ' "	° ' "
May 3	16 9 0.70	18 50 9.4	.9555478	13 20.0	241 47 57.0	1 55 43.4	.9990210
4	16 8 43.93	18 49 22.7	.9552724	13 15.8	241 49 47.0	1 55 40.3	.9990274
5	16 8 26.99	18 48 35.7	.9550104	13 11.6	241 51 37.0	1 55 37.3	.9990337
6	16 8 9.88	18 47 48.4	.9547619	13 7.4	241 53 27.0	1 55 34.3	.9990401
7	16 7 52.62	18 47 0.8	.9545270	13 3.2	241 55 17.0	1 55 31.3	.9990464
8	16 7 35.20	18 46 12.9	.9543059	12 59.0	241 57 7.0	1 55 28.3	.9990528
9	16 7 17.65	18 45 24.8	.9540986	12 54.7	241 58 57.0	1 55 25.2	.9990591
10	16 6 59.97	18 44 36.5	.9539052	12 50.5	242 0 47.1	1 55 22.2	.9990654
11	16 6 42.16	18 43 47.9	.9537258	12 46.3	242 2 37.1	1 55 19.2	.9990717
12	16 6 24.24	18 42 59.2	.9535605	12 42.0	242 4 27.1	1 55 16.1	.9990780
13	16 6 6.21	18 42 10.3	.9534094	12 37.8	242 6 17.0	1 55 13.1	.9990843
14	16 5 48.09	18 41 21.3	.9532725	12 33.6	242 8 7.0	1 55 10.1	.9990906
15	16 5 29.89	18 40 32.1	.9531499	12 29.3	242 9 57.0	1 55 7.0	.9990968
16	16 5 11.60	18 39 42.9	.9530416	12 25.1	242 11 47.0	1 55 4.0	.9991031
17	16 4 53.24	18 38 53.6	.9529478	12 20.9	242 13 37.0	1 55 0.9	.9991094
18	16 4 34.83	18 38 4.3	.9528685	12 16.6	242 15 27.0	1 54 57.9	.9991157
19	16 4 16.37	18 37 15.0	.9528038	12 12.4	242 17 17.0	1 54 54.9	.9991220
20	16 3 57.87	18 36 25.7	.9527537	12 8.1	242 19 7.0	1 54 51.8	.9991282
21	16 3 39.34	18 35 36.5	.9527181	12 3.9	242 20 57.0	1 54 48.8	.9991345
22	16 3 20.79	18 34 47.3	.9526972	11 59.7	242 22 46.9	1 54 45.7	.9991407
23	16 3 2.23	18 33 58.2	.9526909	11 55.4	242 24 36.9	1 54 42.7	.9991470
24	16 2 43.68	18 33 9.3	.9526992	11 51.2	242 26 26.9	1 54 39.6	.9991532
25	16 2 25.14	18 32 20.5	.9527221	11 46.9	242 28 16.9	1 54 36.5	.9991594
26	16 2 6.61	18 31 32.0	.9527596	11 42.7	242 30 6.8	1 54 33.5	.9991657
27	16 1 48.12	18 30 43.6	.9528117	11 38.5	242 31 56.8	1 54 30.4	.9991719
28	16 1 29.67	18 29 55.5	.9528782	11 34.2	242 33 46.8	1 54 27.4	.9991781
29	16 1 11.28	18 29 7.7	.9529591	11 30.0	242 35 36.7	1 54 24.3	.9991843
30	16 0 52.94	18 28 20.2	.9530545	11 25.7	242 37 26.7	1 54 21.2	.9991905
31	16 0 34.67	18 27 33.0	.9531642	11 21.5	242 39 16.7	1 54 18.2	.9991967
June 1	16 0 16.48	18 26 46.1	.9532881	11 17.3	242 41 6.6	1 54 15.1	.9992029
2	15 59 58.38	18 25 59.7	.9534261	11 13.0	242 42 56.6	1 54 12.0	.9992091
3	15 59 40.37	18 25 13.6	.9535783	11 8.8	242 44 46.5	1 54 8.9	.9992152
4	15 59 22.46	18 24 27.9	.9537444	11 4.6	242 46 36.5	1 54 5.9	.9992214
5	15 59 4.67	18 23 42.7	.9539245	11 0.4	242 48 26.4	1 54 2.8	.9992276
6	15 58 47.00	18 22 58.0	.9541184	10 56.1	242 50 16.3	1 53 59.7	.9992337
7	15 58 29.45	18 22 13.8	.9543261	10 51.9	242 52 6.3	1 53 56.6	.9992399
8	15 58 12.04	18 21 30.1	.9545475	10 47.7	242 53 56.2	1 53 53.5	.9992460
9	15 57 54.77	18 20 46.9	.9547824	10 43.5	242 55 46.1	1 53 50.5	.9992522
10	15 57 37.66	18 20 4.3	.9550308	10 39.3	242 57 36.1	1 53 47.4	.9992583
11	15 57 20.71	18 19 22.3	.9552926	10 35.1	242 59 26.0	1 53 44.3	.9992644
12	15 57 3.93	18 18 41.0	.9555677	10 30.9	243 1 15.9	1 53 41.2	.9992706
13	15 56 47.32	18 18 0.2	.9558559	10 26.7	243 3 5.8	1 53 38.1	.9992767

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
<div> <div>h m s</div> <div>° ' "</div> <div>°</div> </div>							
June 13	15 56 47.32	18 18 0.2	9558559	10 26.7	243 3 5.8	1 53 38.1	9992767
14	15 56 30.90	18 17 20.2	9561572	10 22.5	243 4 55.8	1 53 35.0	9992828
15	15 56 14.67	18 16 40.8	9564714	10 18.3	243 6 45.7	1 53 31.9	9992889
16	15 55 58.65	18 16 2.2	9567985	10 14.1	243 8 35.6	1 53 28.8	9992950
17	15 55 42.84	18 15 24.3	9571382	10 9.9	243 10 25.5	1 53 25.7	9993011
18	15 55 27.24	18 14 47.2	9574905	10 5.7	243 12 15.4	1 53 22.6	9993072
19	15 55 11.88	18 14 10.8	9578553	10 1.5	243 14 5.3	1 53 19.5	9993133
20	15 54 56.74	18 13 35.3	9582322	9 57.3	243 15 55.2	1 53 16.4	9993194
21	15 54 41.85	18 13 0.7	9586212	9 53.1	243 17 45.1	1 53 13.3	9993254
22	15 54 27.20	18 12 26.9	9590220	9 49.0	243 19 35.0	1 53 10.2	9993315
23	15 54 12.82	18 11 54.0	9594345	9 44.8	243 21 24.9	1 53 7.1	9993375
24	15 53 58.70	18 11 22.0	9598585	9 40.6	243 23 14.8	1 53 3.9	9993436
25	15 53 44.85	18 10 51.0	9602937	9 36.5	243 25 4.7	1 53 0.8	9993496
26	15 53 31.28	18 10 20.9	9607401	9 32.3	243 26 54.6	1 52 57.7	9993557
27	15 53 17.98	18 9 51.7	9611973	9 28.1	243 28 44.4	1 52 54.6	9993617
28	15 53 4.98	18 9 23.6	9616652	9 24.0	243 30 34.3	1 52 51.5	9993677
29	15 52 52.27	18 8 56.4	9621436	9 19.9	243 32 24.2	1 52 48.3	9993738
30	15 52 39.85	18 8 30.3	9626323	9 15.7	243 34 14.0	1 52 45.2	9993798
July 1	15 52 27.74	18 8 5.2	9631310	9 11.6	243 36 3.9	1 52 42.1	9993858
2	15 52 15.94	18 7 41.2	9636396	9 7.5	243 37 53.8	1 52 39.0	9993918
3	15 52 4.45	18 7 18.2	9641579	9 3.4	243 39 43.6	1 52 35.8	9993978
4	15 51 53.28	18 6 56.3	9646856	8 59.2	243 41 33.5	1 52 32.7	9994038
5	15 51 42.44	18 6 35.5	9652226	8 55.1	243 43 23.3	1 52 29.6	9994098
6	15 51 31.92	18 6 15.8	9657686	8 51.0	243 45 13.2	1 52 26.4	9994157
7	15 51 21.74	18 5 57.2	9663235	8 46.9	243 47 3.0	1 52 23.3	9994217
8	15 51 11.88	18 5 39.8	9668871	8 42.8	243 48 52.8	1 52 20.1	9994277
9	15 51 2.37	18 5 23.5	9674592	8 38.8	243 50 42.7	1 52 17.0	9994336
10	15 50 53.21	18 5 8.3	9680395	8 34.7	243 52 32.5	1 52 13.9	9994396
11	15 50 44.39	18 4 54.3	9686278	8 30.6	243 54 22.3	1 52 10.7	9994456
12	15 50 35.92	18 4 41.5	9692240	8 26.5	243 56 12.2	1 52 7.6	9994515
13	15 50 27.81	18 4 29.9	9698279	8 22.5	243 58 2.0	1 52 4.4	9994574
14	15 50 20.06	18 4 19.5	9704391	8 18.4	243 59 51.8	1 52 1.3	9994634
15	15 50 12.67	18 4 10.3	9710576	8 14.4	244 1 41.6	1 51 58.1	9994693
16	15 50 5.65	18 4 2.3	9716830	8 10.3	244 3 31.4	1 51 55.0	9994752
17	15 49 59.00	18 3 55.5	9723152	8 6.3	244 5 21.2	1 51 51.8	9994811
18	15 49 52.73	18 3 50.0	9729540	8 2.2	244 7 11.0	1 51 48.6	9994870
19	15 49 46.84	18 3 45.8	9735990	7 58.2	244 9 0.8	1 51 45.5	9994929
20	15 49 41.32	18 3 42.8	9742502	7 54.2	244 10 50.6	1 51 42.3	9994988
21	15 49 36.19	18 3 41.0	9749071	7 50.2	244 12 40.3	1 51 39.2	9995047
22	15 49 31.45	18 3 40.5	9755695	7 46.2	244 14 30.1	1 51 36.0	9995105
23	15 49 27.09	18 3 41.3	9762373	7 42.1	244 16 19.9	1 51 32.9	9995164
24	15 49 23.12	18 3 43.4	9769102	7 38.1	244 18 9.6	1 51 29.7	9995223

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>South. ° ' "</i>	<i>°</i>	<i>h m</i>	<i>° ' "</i>	<i>North. ° ' "</i>	<i>°</i>
July 24	15 49 23.12	18 3 43.4	9769102	7 38.1	244 18 9.6	1 51 29.7	9995223
25	15 49 19.54	18 3 46.7	9775878	7 34.2	244 19 59.4	1 51 26.5	9995281
26	15 49 16.36	18 3 51.4	9782701	7 30.2	244 21 49.1	1 51 23.4	9995340
27	15 49 13.57	18 3 57.3	9789568	7 26.2	244 23 38.9	1 51 20.2	9995398
28	15 49 11.17	18 4 4.5	9796476	7 22.2	244 25 28.6	1 51 17.0	9995457
29	15 49 9.17	18 4 13.0	9803423	7 18.3	244 27 18.4	1 51 13.8	9995515
30	15 49 7.56	18 4 22.7	9810407	7 14.3	244 29 8.1	1 51 10.7	9995573
31	15 49 6.35	18 4 33.7	9817425	7 10.4	244 30 57.9	1 51 7.5	9995631
Aug. 1	15 49 5.54	18 4 46.0	9824476	7 6.4	244 32 47.6	1 51 4.3	9995689
2	15 49 5.12	18 4 59.5	9831557	7 2.5	244 34 37.3	1 51 1.1	9995748
3	15 49 5.11	18 5 14.4	9838666	6 58.6	244 36 27.0	1 50 57.9	9995806
4	15 49 5.49	18 5 30.5	9845802	6 54.7	244 38 16.8	1 50 54.8	9995864
5	15 49 6.26	18 5 47.9	9852962	6 50.7	244 40 6.5	1 50 51.6	9995922
6	15 49 7.43	18 6 6.5	9860143	6 46.8	244 41 56.2	1 50 48.4	9995980
7	15 49 9.00	18 6 26.4	9867345	6 42.9	244 43 45.9	1 50 45.2	9996037
8	15 49 10.97	18 6 47.5	9874565	6 39.0	244 45 35.6	1 50 42.0	9996095
9	15 49 13.34	18 7 9.9	9881801	6 35.1	244 47 25.3	1 50 38.8	9996153
10	15 49 16.11	18 7 33.5	9889050	6 31.2	244 49 15.0	1 50 35.6	9996210
11	15 49 19.28	18 7 58.4	9896312	6 27.4	244 51 4.6	1 50 32.4	9996268
12	15 49 22.84	18 8 24.5	9903584	6 23.5	244 52 54.3	1 50 29.2	9996325
13	15 49 26.80	18 8 51.8	9910863	6 19.6	244 54 44.0	1 50 26.0	9996383
14	15 49 31.16	18 9 20.3	9918149	6 15.8	244 56 33.7	1 50 22.8	9996440
15	15 49 35.92	18 9 50.1	9925438	6 11.9	244 58 23.3	1 50 19.6	9996497
16	15 49 41.08	18 10 21.0	9932729	6 8.1	245 0 13.0	1 50 16.4	9996555
17	15 49 46.63	18 10 53.1	9940020	6 4.2	245 2 2.7	1 50 13.2	9996612
18	15 49 52.58	18 11 26.5	9947308	6 0.4	245 3 52.3	1 50 10.0	9996670
19	15 49 58.93	18 12 1.0	9954591	5 56.6	245 5 42.0	1 50 6.8	9996727
20	15 50 5.66	18 12 36.7	9961867	5 52.8	245 7 31.6	1 50 3.6	9996784
21	15 50 12.79	18 13 13.5	9969135	5 49.0	245 9 21.2	1 50 0.3	9996841
22	15 50 20.31	18 13 51.5	9976392	5 45.2	245 11 10.9	1 49 57.1	9996898
23	15 50 28.22	18 14 30.6	9983635	5 41.4	245 13 0.5	1 49 53.9	9996955
24	15 50 36.51	18 15 10.9	9990863	5 37.6	245 14 50.1	1 49 50.7	9997012
25	15 50 45.18	18 15 52.3	9998074	5 33.8	245 16 39.7	1 49 47.4	9997069
			I				
26	15 50 54.23	18 16 34.7	0005267	5 30.0	245 18 29.4	1 49 44.2	9997125
27	15 51 3.67	18 17 18.3	0012439	5 26.2	245 20 19.0	1 49 41.0	9997182
28	15 51 13.48	18 18 2.9	0019589	5 22.5	245 22 8.6	1 49 37.8	9997239
29	15 51 23.66	18 18 48.6	0026715	5 18.7	245 23 58.2	1 49 34.5	9997296
30	15 51 34.22	18 19 35.3	0033816	5 14.9	245 25 47.8	1 49 31.3	9997352
31	15 51 45.15	18 20 23.0	0040889	5 11.2	245 27 37.4	1 49 28.1	9997409
Sept. 1	15 51 56.44	18 21 11.8	0047934	5 7.4	245 29 27.0	1 49 24.8	9997465
2	15 52 8.09	18 22 1.6	0054948	5 3.7	245 31 16.6	1 49 21.6	9997522
3	15 52 20.11	18 22 52.3	0061931	5 0.0	245 33 6.2	1 49 18.3	9997578

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.			
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.	
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.	
Sept.	3	h m s 15 52 20.11	South. ° ' " 18 22 52.3	I .0061931	h m 5 0.0	° ' " 245 33 6.2	North. ° ' " 1 49 18.3	° .9997578
	4	15 52 32.49	18 23 44.0	.0068880	4 56.2	245 34 55.8	1 49 15.1	.9997634
	5	15 52 45.22	18 24 36.6	.0075794	4 52.5	245 36 45.3	1 49 11.8	.9997690
	6	15 52 58.31	18 25 30.1	.0082671	4 48.8	245 38 34.9	1 49 8.6	.9997746
	7	15 53 11.76	18 26 24.6	.0089511	4 45.1	245 40 24.5	1 49 5.4	.9997802
	8	15 53 25.56	18 27 20.0	.0096311	4 41.4	245 42 14.0	1 49 2.1	.9997858
	9	15 53 39.70	18 28 16.3	.0103071	4 37.7	245 44 3.6	1 48 58.9	.9997914
	10	15 53 54.19	18 29 13.5	.0109789	4 34.0	245 45 53.2	1 48 55.6	.9997970
	11	15 54 9.03	18 30 11.6	.0116463	4 30.3	245 47 42.7	1 48 52.3	.9998026
	12	15 54 24.21	18 31 10.5	.0123091	4 26.6	245 49 32.3	1 48 49.1	.9998082
	13	15 54 39.72	18 32 10.2	.0129673	4 23.0	245 51 21.8	1 48 45.8	.9998138
	14	15 54 55.57	18 33 10.8	.0136206	4 19.3	245 53 11.4	1 48 42.6	.9998194
	15	15 55 11.76	18 34 12.1	.0142688	4 15.6	245 55 0.9	1 48 39.3	.9998249
	16	15 55 28.27	18 35 14.2	.0149119	4 12.0	245 56 50.4	1 48 36.0	.9998305
	17	15 55 45.11	18 36 17.1	.0155496	4 8.3	245 58 40.0	1 48 32.8	.9998360
	18	15 56 2.27	18 37 20.8	.0161819	4 4.7	246 0 29.5	1 48 29.5	.9998416
	19	15 56 19.75	18 38 25.2	.0168086	4 1.0	246 2 19.0	1 48 26.2	.9998471
	20	15 56 37.55	18 39 30.2	.0174295	3 57.4	246 4 8.5	1 48 23.0	.9998526
	21	15 56 55.66	18 40 36.0	.0180446	3 53.8	246 5 58.0	1 48 19.7	.9998582
	22	15 57 14.08	18 41 42.5	.0186536	3 50.2	246 7 47.6	1 48 16.4	.9998637
	23	15 57 32.80	18 42 49.6	.0192565	3 46.5	246 9 37.1	1 48 13.1	.9998692
	24	15 57 51.83	18 43 57.4	.0198531	3 42.9	246 11 26.6	1 48 9.9	.9998747
	25	15 58 11.16	18 45 5.7	.0204434	3 39.3	246 13 16.1	1 48 6.6	.9998802
	26	15 58 30.77	18 46 14.7	.0210271	3 35.7	246 15 5.6	1 48 3.3	.9998857
	27	15 58 50.67	18 47 24.2	.0216043	3 32.1	246 16 55.1	1 48 0.0	.9998912
	28	15 59 10.86	18 48 34.3	.0221748	3 28.5	246 18 44.6	1 47 56.7	.9998967
29	15 59 31.33	18 49 44.9	.0227385	3 24.9	246 20 34.1	1 47 53.4	.9999022	
30	15 59 52.07	18 50 56.0	.0232953	3 21.3	246 22 23.6	1 47 50.1	.9999077	
Oct.	1	16 0 13.09	18 52 7.6	.0238451	3 17.7	246 24 13.0	1 47 46.9	.9999131
	2	16 0 34.38	18 53 19.7	.0243878	3 14.2	246 26 2.5	1 47 43.6	.9999186
	3	16 0 55.94	18 54 32.2	.0249234	3 10.6	246 27 52.0	1 47 40.3	.9999240
	4	16 1 17.76	18 55 45.2	.0254518	3 7.0	246 29 41.5	1 47 37.0	.9999295
	5	16 1 39.85	18 56 58.7	.0259728	3 3.5	246 31 31.0	1 47 33.7	.9999349
	6	16 2 2.19	18 58 12.6	.0264863	2 59.9	246 33 20.4	1 47 30.4	.9999404
	7	16 2 24.78	18 59 26.8	.0269923	2 56.3	246 35 9.9	1 47 27.1	.9999458
	8	16 2 47.63	19 0 41.5	.0274906	2 52.8	246 36 59.4	1 47 23.8	.9999512
	9	16 3 10.72	19 1 56.5	.0279812	2 49.2	246 38 48.9	1 47 20.5	.9999566
	10	16 3 34.06	19 3 11.9	.0284639	2 45.7	246 40 38.3	1 47 17.2	.9999621
	11	16 3 57.63	19 4 27.5	.0289387	2 42.2	246 42 27.8	1 47 13.9	.9999675
	12	16 4 21.44	19 5 43.5	.0294054	2 38.6	246 44 17.2	1 47 10.5	.9999729
	13	16 4 45.48	19 6 59.8	.0298639	2 35.1	246 46 6.7	1 47 7.2	.9999783
	14	16 5 9.74	19 8 16.3	.0303142	2 31.6	246 47 56.1	1 47 3.9	.9999836

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	^h ^m ^s	[°] ['] ["] South.	[°] ['] ["] I	^h ^m	[°] ['] ["] North.	[°] ['] ["] North.	[°]
Oct. 14	16 5 9.74	19 8 16.3	0.303142	2 31.6	246 47 56.1	1 47 3.9	.9999836
15	16 5 34.23	19 9 33.1	0.307561	2 28.0	246 49 45.6	1 47 0.6	.9999890
16	16 5 58.94	19 10 50.1	0.311896	2 24.5	246 51 35.1	1 46 57.3	.9999944
17	16 6 23.86	19 12 7.4	0.316146	2 21.0	246 53 24.5	1 46 54.0	.9999997
							I
18	16 6 49.00	19 13 24.8	0.320309	2 17.5	246 55 14.0	1 46 50.6	.0000051
19	16 7 14.34	19 14 42.4	0.324386	2 14.0	246 57 3.4	1 46 47.3	.0000104
20	16 7 39.88	19 16 0.1	0.328375	2 10.5	246 58 52.9	1 46 44.0	.0000158
21	16 8 5.62	19 17 18.0	0.332276	2 7.0	247 0 42.3	1 46 40.7	.0000211
22	16 8 31.55	19 18 36.0	0.336088	2 3.5	247 2 31.8	1 46 37.4	.0000265
23	16 8 57.66	19 19 54.1	0.339810	2 0.0	247 4 21.2	1 46 34.0	.0000318
24	16 9 23.96	19 21 12.3	0.343442	1 56.5	247 6 10.7	1 46 30.7	.0000371
25	16 9 50.43	19 22 30.6	0.346983	1 53.0	247 8 0.1	1 46 27.4	.0000424
26	16 10 17.08	19 23 48.9	0.350433	1 49.5	247 9 49.6	1 46 24.0	.0000477
27	16 10 43.89	19 25 7.3	0.353791	1 46.0	247 11 39.0	1 46 20.7	.0000530
28	16 11 10.87	19 26 25.7	0.357057	1 42.5	247 13 28.5	1 46 17.4	.0000583
29	16 11 38.01	19 27 44.0	0.360231	1 39.0	247 15 17.9	1 46 14.0	.0000635
30	16 12 5.30	19 29 2.4	0.363311	1 35.5	247 17 7.3	1 46 10.7	.0000688
31	16 12 32.75	19 30 20.7	0.366298	1 32.1	247 18 56.8	1 46 7.3	.0000741
Nov. 1	16 13 0.35	19 31 38.9	0.369191	1 28.6	247 20 46.2	1 46 4.0	.0000793
2	16 13 28.09	19 32 57.0	0.371990	1 25.1	247 22 35.6	1 46 0.7	.0000846
3	16 13 55.97	19 34 15.1	0.374694	1 21.6	247 24 25.1	1 45 57.3	.0000898
4	16 14 23.98	19 35 33.0	0.377302	1 18.2	247 26 14.5	1 45 54.0	.0000951
5	16 14 52.13	19 36 50.9	0.379814	1 14.7	247 28 3.9	1 45 50.6	.0001004
6	16 15 20.41	19 38 8.6	0.382230	1 11.3	247 29 53.4	1 45 47.3	.0001056
7	16 15 48.80	19 39 26.2	0.384548	1 7.8	247 31 42.8	1 45 43.9	.0001108
8	16 16 17.32	19 40 43.6	0.386769	1 4.3	247 33 32.2	1 45 40.6	.0001160
9	16 16 45.95	19 42 0.8	0.388892	1 0.9	247 35 21.6	1 45 37.2	.0001212
10	16 17 14.70	19 43 17.9	0.390917	0 57.4	247 37 11.0	1 45 33.8	.0001265
11	16 17 43.54	19 44 34.7	0.392842	0 54.0	247 39 0.5	1 45 30.5	.0001317
12	16 18 12.49	19 45 51.3	0.394667	0 50.5	247 40 49.9	1 45 27.1	.0001368
13	16 18 41.53	19 47 7.7	0.396393	0 47.1	247 42 39.3	1 45 23.8	.0001420
14	16 19 10.66	19 48 23.8	0.398018	0 43.6	247 44 28.7	1 45 20.4	.0001472
15	16 19 39.87	19 49 39.7	0.399542	0 40.2	247 46 18.1	1 45 17.0	.0001524
16	16 20 9.17	19 50 55.3	0.400965	0 36.7	247 48 7.5	1 45 13.7	.0001575
17	16 20 38.53	19 52 10.6	0.402286	0 33.3	247 49 57.0	1 45 10.3	.0001627
18	16 21 7.97	19 53 25.6	0.403506	0 29.8	247 51 46.4	1 45 6.9	.0001678
19	16 21 37.47	19 54 40.3	0.404625	0 26.4	247 53 35.8	1 45 3.6	.0001730
20	16 22 7.04	19 55 54.6	0.405641	0 23.0	247 55 25.2	1 45 0.2	.0001781
21	16 22 36.66	19 57 8.6	0.406555	0 19.5	247 57 14.6	1 44 56.8	.0001833
22	16 23 6.34	19 58 22.2	0.407368	0 16.1	247 59 4.0	1 44 53.4	.0001884
23	16 23 36.05	19 59 35.4	0.408078	0 12.6	248 0 53.4	1 44 50.1	.0001935
24	16 24 5.81	20 0 48.2	0.408685	0 9.2	248 2 42.8	1 44 46.7	.0001986

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>South. ° ' "</i>	<i>I</i>	<i>h m</i>	<i>° ' "</i>	<i>North. ° ' "</i>	<i>I</i>
Nov. 24	16 24 5.81	20 0 48.2	.0408685	0 9.2	248 2 42.8	1 44 46.7	.0001986
25	16 24 35.61	20 2 0.5	.0409191	0 5.8	248 4 32.2	1 44 43.3	.0002038
26	16 25 5.43	20 3 12.5	.0409594	{ 11 54.1 }	248 6 21.6	1 44 39.9	.0002089
27	16 25 35.28	20 4 24.0	.0409896	23 55.5	248 8 11.0	1 44 36.5	.0002140
28	16 26 5.15	20 5 35.1	.0410095	23 52.0	248 10 0.4	1 44 33.1	.0002190
29	16 26 35.03	20 6 45.7	.0410192	23 48.6	248 11 49.8	1 44 29.7	.0002241
30	16 27 4.93	20 7 55.9	.0410187	23 45.1	248 13 39.2	1 44 26.4	.0002292
Dec. 1	16 27 34.83	20 9 5.6	.0410080	23 41.7	248 15 28.6	1 44 23.0	.0002343
2	16 28 4.73	20 10 14.9	.0409870	23 38.3	248 17 18.0	1 44 19.6	.0002393
3	16 28 34.64	20 11 23.6	.0409558	23 34.8	248 19 7.4	1 44 16.2	.0002444
4	16 29 4.53	20 12 31.8	.0409144	23 31.4	248 20 56.8	1 44 12.8	.0002494
5	16 29 34.42	20 13 39.5	.0408627	23 28.0	248 22 46.1	1 44 9.4	.0002545
6	16 30 4.30	20 14 46.7	.0408007	23 24.5	248 24 35.5	1 44 6.0	.0002595
7	16 30 34.16	20 15 53.4	.0407285	23 21.1	248 26 24.9	1 44 2.6	.0002646
8	16 31 3.99	20 16 59.5	.0406460	23 17.6	248 28 14.3	1 43 59.2	.0002696
9	16 31 33.79	20 18 5.1	.0405532	23 14.2	248 30 3.7	1 43 55.8	.0002746
10	16 32 3.56	20 19 10.1	.0404502	23 10.8	248 31 53.0	1 43 52.4	.0002796
11	16 32 33.29	20 20 14.5	.0403368	23 7.3	248 33 42.4	1 43 48.9	.0002847
12	16 33 2.98	20 21 18.3	.0402132	23 3.9	248 35 31.8	1 43 45.5	.0002897
13	16 33 32.61	20 22 21.6	.0400793	23 0.5	248 37 21.1	1 43 42.1	.0002947
14	16 34 2.18	20 23 24.3	.0399351	22 57.0	248 39 10.5	1 43 38.7	.0002996
15	16 34 31.69	20 24 26.4	.0397807	22 53.6	248 40 59.9	1 43 35.3	.0003046
16	16 35 1.14	20 25 27.9	.0396161	22 50.1	248 42 49.2	1 43 31.9	.0003096
17	16 35 30.51	20 26 28.7	.0394413	22 46.7	248 44 38.6	1 43 28.4	.0003145
18	16 35 59.80	20 27 28.9	.0392564	22 43.2	248 46 28.0	1 43 25.0	.0003195
19	16 36 29.01	20 28 28.5	.0390614	22 39.8	248 48 17.3	1 43 21.6	.0003244
20	16 36 58.14	20 29 27.4	.0388563	22 36.3	248 50 6.7	1 43 18.2	.0003294
21	16 37 27.17	20 30 25.7	.0386413	22 32.9	248 51 56.0	1 43 14.7	.0003343
22	16 37 56.10	20 31 23.3	.0384163	22 29.4	248 53 45.4	1 43 11.3	.0003393
23	16 38 24.93	20 32 20.2	.0381814	22 26.0	248 55 34.7	1 43 7.9	.0003442
24	16 38 53.65	20 33 16.5	.0379366	22 22.5	248 57 24.0	1 43 4.4	.0003491
25	16 39 22.25	20 34 12.0	.0376821	22 19.0	248 59 13.4	1 43 1.0	.0003541
26	16 39 50.73	20 35 6.9	.0374177	22 15.6	249 1 2.7	1 42 57.6	.0003590
27	16 40 19.09	20 36 1.1	.0371437	22 12.1	249 2 52.0	1 42 54.1	.0003639
28	16 40 47.32	20 36 54.7	.0368599	22 8.6	249 4 41.4	1 42 50.7	.0003688
29	16 41 15.43	20 37 47.5	.0365666	22 5.2	249 6 30.7	1 42 47.2	.0003737
30	16 41 43.39	20 38 39.6	.0362636	22 1.7	249 8 20.0	1 42 43.8	.0003786
31	16 42 11.21	20 39 31.1	.0359510	21 58.2	249 10 9.3	1 42 40.4	.0003834
32	16 42 38.89	20 40 21.8	.0356290	21 54.8	249 11 58.6	1 42 36.9	.0003883

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
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	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>° ' "</i>	<i>I</i>	<i>h m</i>	<i>° ' "</i>	<i>° ' "</i>	<i>I</i>
Jan. 1	6 47 39.77	23 22 55.3	.2510459	12 3.8	100 53 39.7	0 21 33.6	.2743626
5	6 46 54.65	23 23 48.3	.2510774	11 47.4	100 56 35.8	0 21 35.7	.2743473
9	6 46 9.82	23 24 39.8	.2512311	11 30.9	100 59 31.8	0 21 37.8	.2743319
13	6 45 25.58	23 25 29.5	.2515057	11 14.5	101 2 27.9	0 21 39.9	.2743166
17	6 44 42.23	23 26 17.0	.2518993	10 58.0	101 5 24.0	0 21 42.0	.2743013
21	6 44 0.11	23 27 2.2	.2524099	10 41.6	101 8 20.0	0 21 44.2	.2742861
25	6 43 19.50	23 27 44.7	.2530343	10 25.2	101 11 16.1	0 21 46.3	.2742708
29	6 42 40.73	23 28 24.2	.2537683	10 8.8	101 14 12.1	0 21 48.4	.2742555
Feb. 2	6 42 4.08	23 29 0.8	.2546063	9 52.5	101 17 8.2	0 21 50.5	.2742402
6	6 41 29.80	23 29 34.2	.2555425	9 36.2	101 20 4.2	0 21 52.6	.2742249
10	6 40 58.12	23 30 4.3	.2565709	9 20.0	101 23 0.3	0 21 54.7	.2742096
14	6 40 29.23	23 30 31.1	.2576849	9 3.8	101 25 56.3	0 21 56.8	.2741944
18	6 40 3.33	23 30 54.4	.2588781	8 47.6	101 28 52.3	0 21 58.9	.2741791
22	6 39 40.61	23 31 14.2	.2601438	8 31.5	101 31 48.3	0 22 1.0	.2741639
26	6 39 21.23	23 31 30.4	.2614742	8 15.5	101 34 44.2	0 22 3.1	.2741486
Mar. 1	6 39 5.34	23 31 43.1	.2628612	7 59.5	101 37 40.2	0 22 5.2	.2741334
5	6 38 53.03	23 31 52.1	.2642962	7 43.5	101 40 36.1	0 22 7.3	.2741182
9	6 38 44.35	23 31 57.7	.2657713	7 27.7	101 43 32.1	0 22 9.4	.2741029
13	6 38 39.36	23 31 59.8	.2672788	7 11.9	101 46 28.0	0 22 11.5	.2740877
17	6 38 38.11	23 31 58.3	.2688112	6 56.1	101 49 24.0	0 22 13.6	.2740725
21	6 38 40.62	23 31 53.2	.2703610	6 40.5	101 52 20.0	0 22 15.6	.2740573
25	6 38 46.89	23 31 44.6	.2719202	6 24.9	101 55 16.0	0 22 17.7	.2740421
29	6 38 56.02	23 31 32.5	.2734806	6 9.3	101 58 12.1	0 22 19.8	.2740270
Apr. 2	6 39 10.64	23 31 16.9	.2750346	5 53.8	102 1 8.2	0 22 21.9	.2740118
6	6 39 27.99	23 30 58.0	.2765752	5 38.4	102 4 4.2	0 22 24.0	.2739967
10	6 39 48.89	23 30 35.6	.2780958	5 23.0	102 7 0.3	0 22 26.1	.2739816
14	6 40 13.25	23 30 9.8	.2795903	5 7.6	102 9 56.4	0 22 28.1	.2739664
18	6 40 40.99	23 29 40.5	.2810523	4 52.4	102 12 52.6	0 22 30.2	.2739513
22	6 41 12.02	23 29 7.6	.2824760	4 37.2	102 15 48.8	0 22 32.3	.2739362
26	6 41 46.21	23 28 31.5	.2838548	4 22.0	102 18 45.1	0 22 34.3	.2739210
30	6 42 23.42	23 27 52.2	.2851831	4 6.9	102 21 41.4	0 22 36.4	.2739059
May 4	6 43 3.48	23 27 9.5	.2864565	3 51.8	102 24 37.7	0 22 38.5	.2738908
8	6 43 46.26	23 26 23.5	.2876705	3 36.8	102 27 34.1	0 22 40.6	.2738757
12	6 44 31.60	23 25 34.2	.2888210	3 21.9	102 30 30.5	0 22 42.7	.2738606
16	6 45 19.35	23 24 41.7	.2899042	3 6.9	102 33 26.9	0 22 44.8	.2738455
20	6 46 9.36	23 23 46.0	.2909161	2 52.0	102 36 23.3	0 22 46.8	.2738305
24	6 47 1.46	23 22 47.2	.2918526	2 37.2	102 39 19.8	0 22 48.9	.2738154
28	6 47 55.47	23 21 45.5	.2927105	2 22.3	102 42 16.3	0 22 51.0	.2738003
June 1	6 48 51.19	23 20 40.8	.2934873	2 7.5	102 45 12.9	0 22 53.1	.2737853
5	6 49 48.44	23 19 33.4	.2941808	1 52.8	102 48 9.5	0 22 55.2	.2737702
9	6 50 47.05	23 18 23.2	.2947895	1 38.0	102 51 6.1	0 22 57.3	.2737552
13	6 51 46.84	23 17 10.5	.2953111	1 23.3	102 54 2.7	0 22 59.3	.2737401
17	6 52 47.65	23 15 55.4	.2957438	1 8.6	102 56 59.3	0 23 1.4	.2737251
21	6 53 49.29	23 14 38.0	.2960856	0 53.8	102 59 56.0	0 23 3.5	.2737101
25	6 54 51.54	23 13 18.6	.2963356	0 39.2	103 2 52.7	0 23 5.5	.2736950
29	6 55 54.21	23 11 57.4	.2964932	0 24.5	103 5 49.3	0 23 7.6	.2736800
July 3	6 56 57.11	23 10 34.6	.2965582	0 9.8	103 8 46.0	0 23 9.7	.2736650

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	<i>h m s</i>	<i>North.</i> <i>° ' "</i>	<i>I</i>	<i>h m</i>	<i>° ' "</i>	<i>North.</i> <i>° ' "</i>	<i>I</i>
July 3	6 56 57.11	23 10 34.6	.2965582	0 9.8	103 8 46.0	0 23 9.7	.2736650
7	6 58 0.08	23 9 10.5	.2965308	23 51.4	103 11 42.7	0 23 11.7	.2736500
11	6 59 2.92	23 7 45.2	.2964109	23 36.7	103 14 39.4	0 23 13.8	.2736350
15	7 0 5.47	23 6 19.1	.2961983	23 22.1	103 17 36.1	0 23 15.9	.2736200
19	7 1 7.51	23 4 52.5	.2958931	23 7.3	103 20 32.8	0 23 17.9	.2736051
23	7 2 8.87	23 3 25.7	.2954963	22 52.6	103 23 29.5	0 23 20.0	.2735901
27	7 3 9.33	23 1 59.0	.2950092	22 37.9	103 26 26.2	0 23 22.1	.2735751
31	7 4 8.72	23 0 32.8	.2944333	22 23.2	103 29 22.9	0 23 24.1	.2735602
Aug. 4	7 5 6.86	22 59 7.3	.2937708	22 8.4	103 32 19.6	0 23 26.2	.2735452
8	7 6 3.60	22 57 42.9	.2930236	21 53.6	103 35 16.3	0 23 28.3	.2735303
12	7 6 58.75	22 56 20.3	.2921933	21 38.8	103 38 13.0	0 23 30.3	.2735153
16	7 7 52.13	22 54 59.6	.2912822	21 23.9	103 41 9.6	0 23 32.4	.2735004
20	7 8 43.55	22 53 41.1	.2902931	21 9.0	103 44 6.2	0 23 34.5	.2734855
24	7 9 32.83	22 52 25.4	.2892294	20 54.1	103 47 2.8	0 23 36.5	.2734706
28	7 10 19.81	22 51 12.8	.2880949	20 39.2	103 49 59.5	0 23 38.6	.2734557
Sept. 1	7 11 4.35	22 50 3.6	.2868938	20 24.2	103 52 56.1	0 23 40.7	.2734408
5	7 11 46.30	22 48 58.3	.2856299	20 9.1	103 55 52.7	0 23 42.7	.2734258
9	7 12 25.51	22 47 57.3	.2843076	19 54.0	103 58 49.4	0 23 44.7	.2734109
13	7 13 1.85	22 47 0.9	.2829311	19 38.9	104 1 46.1	0 23 46.8	.2733960
17	7 13 35.15	22 46 9.6	.2815052	19 23.7	104 4 42.8	0 23 48.8	.2733812
21	7 14 5.26	22 45 23.4	.2800358	19 8.5	104 7 39.4	0 23 50.9	.2733663
25	7 14 32.08	22 44 42.8	.2785296	18 53.2	104 10 36.1	0 23 53.0	.2733514
29	7 14 55.53	22 44 8.1	.2769928	18 37.8	104 13 32.8	0 23 55.0	.2733365
Oct. 3	7 15 15.52	22 43 39.6	.2754314	18 22.4	104 16 29.4	0 23 57.0	.2733216
7	7 15 31.98	22 43 17.3	.2738514	18 7.0	104 19 26.1	0 23 59.1	.2733067
11	7 15 44.82	22 43 1.6	.2722599	17 51.5	104 22 22.8	0 24 1.1	.2732919
15	7 15 53.97	22 42 52.5	.2706641	17 35.9	104 25 19.6	0 24 3.1	.2732770
19	7 15 59.39	22 42 50.1	.2690716	17 20.2	104 28 16.4	0 24 5.2	.2732622
23	7 16 1.07	22 42 54.3	.2674908	17 4.5	104 31 13.2	0 24 7.2	.2732473
27	7 15 59.03	22 43 5.3	.2659298	16 48.7	104 34 10.1	0 24 9.3	.2732325
31	7 15 53.30	22 43 22.8	.2643960	16 32.9	104 37 7.0	0 24 11.4	.2732177
Nov. 4	7 15 43.92	22 43 46.9	.2628971	16 17.0	104 40 4.0	0 24 13.4	.2732029
8	7 15 30.93	22 44 17.4	.2614409	16 1.0	104 43 1.0	0 24 15.4	.2731881
12	7 15 14.41	22 44 54.0	.2600352	15 45.0	104 45 58.0	0 24 17.5	.2731733
16	7 14 54.45	22 45 36.5	.2586888	15 29.0	104 48 55.1	0 24 19.5	.2731585
20	7 14 31.21	22 46 24.3	.2574098	15 12.9	104 51 52.2	0 24 21.6	.2731437
24	7 14 4.84	22 47 17.1	.2562057	14 56.7	104 54 49.4	0 24 23.7	.2731290
28	7 13 35.53	22 48 14.6	.2550834	14 40.5	104 57 46.5	0 24 25.7	.2731142
Dec. 2	7 13 3.48	22 49 16.3	.2540493	14 24.2	105 0 43.7	0 24 27.7	.2730994
6	7 12 28.89	22 50 21.6	.2531094	14 7.9	105 3 40.9	0 24 29.8	.2730847
10	7 11 52.00	22 51 30.1	.2522700	13 51.6	105 6 38.2	0 24 31.8	.2730699
14	7 11 13.04	22 52 41.2	.2515368	13 35.2	105 9 35.5	0 24 33.8	.2730552
18	7 10 32.32	22 53 54.2	.2509149	13 18.8	105 12 32.8	0 24 35.9	.2730405
22	7 9 50.12	22 55 8.5	.2504084	13 2.3	105 15 30.1	0 24 37.9	.2730257
26	7 9 6.78	22 56 23.7	.2500203	12 45.9	105 18 27.5	0 24 39.9	.2730110
30	7 8 22.60	22 57 39.1	.2497523	12 29.4	105 21 24.8	0 24 41.9	.2729963
34	7 7 37.88	22 58 54.3	.2496060	12 13.0	105 24 22.1	0 24 44.0	.2729816

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	h m s	North. ° ' "	I	h m	° ' "	South. ° ' "	I
Jan. 1	0 47 45.55	3 23 19.5	.4738638	6 5.1	14 11 31.7	1 36 0.4	.4745702
5	0 47 50.65	3 24 5.1	.4748756	5 49.4	14 13 0.0	1 36 1.6	.4745691
9	0 47 57.79	3 25 3.5	.4758821	5 33.8	14 14 28.3	1 36 2.8	.4745681
13	0 48 6.94	3 26 14.5	.4768785	5 18.2	14 15 56.6	1 36 4.0	.4745671
17	0 48 18.08	3 27 37.8	.4778604	5 2.7	14 17 24.8	1 36 5.2	.4745661
21	0 48 31.19	3 29 13.4	.4788235	4 47.2	14 18 53.1	1 36 6.4	.4745651
25	0 48 46.20	3 31 0.7	.4797632	4 31.7	14 20 21.3	1 36 7.6	.4745641
29	0 49 3.07	3 32 59.0	.4806749	4 16.3	14 21 49.5	1 36 8.8	.4745631
Feb. 2	0 49 21.71	3 35 7.9	.4815543	4 0.8	14 23 17.7	1 36 10.0	.4745621
6	0 49 42.04	3 37 27.1	.4823975	3 45.4	14 24 45.9	1 36 11.2	.4745611
10	0 50 3.98	3 39 55.9	.4832011	3 30.1	14 26 14.0	1 36 12.4	.4745601
14	0 50 27.45	3 42 33.7	.4839621	3 14.7	14 27 42.1	1 36 13.6	.4745591
18	0 50 52.36	3 45 19.8	.4846773	2 59.4	14 29 10.1	1 36 14.7	.4745581
22	0 51 18.62	3 48 13.6	.4853437	2 44.1	14 30 38.2	1 36 15.9	.4745571
26	0 51 46.12	3 51 14.3	.4859585	2 28.9	14 32 6.2	1 36 17.1	.4745561
Mar. 1	0 52 14.76	3 54 21.4	.4865192	2 13.6	14 33 34.3	1 36 18.2	.4745551
5	0 52 44.41	3 57 34.1	.4870236	1 58.4	14 35 2.3	1 36 19.4	.4745541
9	0 53 14.96	4 0 51.4	.4874701	1 43.2	14 36 30.3	1 36 20.6	.4745531
13	0 53 46.30	4 4 12.7	.4878573	1 28.0	14 37 58.2	1 36 21.8	.4745521
17	0 54 18.33	4 7 37.2	.4881842	1 12.8	14 39 26.2	1 36 23.0	.4745511
21	0 54 50.92	4 11 4.3	.4884493	0 57.6	14 40 54.2	1 36 24.2	.4745502
25	0 55 23.96	4 14 33.3	.4886514	0 42.4	14 42 22.2	1 36 25.4	.4745492
29	0 55 57.33	4 18 3.2	.4887900	0 27.2	14 43 50.2	1 36 26.5	.4745483
Apr. 2	0 56 30.89	4 21 33.2	.4888647	0 12.1	14 45 18.2	1 36 27.7	.4745473
6	0 57 4.52	4 25 2.6	.4888759	23 53.1	14 46 46.2	1 36 28.9	.4745464
10	0 57 38.12	4 28 30.8	.4888240	23 37.9	14 48 14.2	1 36 30.1	.4745454
14	0 58 11.57	4 31 57.0	.4887093	23 22.8	14 49 42.2	1 36 31.2	.4745445
18	0 58 44.76	4 35 20.6	.4885321	23 7.6	14 51 10.3	1 36 32.3	.4745435
22	0 59 17.57	4 38 40.7	.4882932	22 52.4	14 52 38.4	1 36 33.5	.4745426
26	0 59 49.88	4 41 56.6	.4879936	22 37.2	14 54 6.5	1 36 34.7	.4745416
30	1 0 21.58	4 45 7.7	.4876347	22 22.0	14 55 34.6	1 36 35.9	.4745407
May 4	1 0 52.54	4 48 13.4	.4872183	22 6.8	14 57 2.7	1 36 37.1	.4745397
8	1 1 22.68	4 51 13.0	.4867463	21 51.5	14 58 30.9	1 36 38.2	.4745388
12	1 1 51.90	4 54 6.0	.4862206	21 36.3	14 59 59.1	1 36 39.4	.4745378
16	1 2 20.09	4 56 51.7	.4856430	21 21.0	15 1 27.3	1 36 40.5	.4745369
20	1 2 47.17	4 59 29.6	.4850157	21 5.7	15 2 55.5	1 36 41.7	.4745359
24	1 3 13.03	5 1 59.2	.4843412	20 50.4	15 4 23.8	1 36 42.8	.4745350
28	1 3 37.57	5 4 19.9	.4836224	20 35.1	15 5 52.1	1 36 44.0	.4745340
June 1	1 4 0.71	5 6 31.2	.4828623	20 19.8	15 7 20.4	1 36 45.1	.4745331
5	1 4 22.38	5 8 32.8	.4820642	20 4.4	15 8 48.7	1 36 46.3	.4745321
9	1 4 42.51	5 10 24.2	.4812311	19 49.0	15 10 17.0	1 36 47.4	.4745312
13	1 5 1.04	5 12 5.1	.4803663	19 33.6	15 11 45.3	1 36 48.6	.4745303
17	1 5 17.89	5 13 35.1	.4794732	19 18.1	15 13 13.7	1 36 49.8	.4745294
21	1 5 32.99	5 14 54.0	.4785553	19 2.6	15 14 42.0	1 36 51.0	.4745285
25	1 5 46.30	5 16 1.6	.4776167	18 47.1	15 16 10.4	1 36 52.1	.4745276
29	1 5 57.76	5 16 57.4	.4766618	18 31.6	15 17 38.7	1 36 53.3	.4745267
July 3	1 6 7.35	5 17 41.4	.4756945	18 16.0	15 19 7.0	1 36 54.4	.4745258

MEAN TIME.

Month and Day.	Geocentric.				Heliocentric.		
	Apparent Right Ascension.	Apparent Declination.	Log. of True Dist. from the Earth.	Meridian Passage.	Longitude.	Latitude.	Log. of Rad. Vect.
	Noon.	Noon.	Noon.		Noon.	Noon.	Noon.
	North.				South.		
	<i>h m s</i>	<i>° ' "</i>	<i>I</i>	<i>h m</i>	<i>° ' "</i>	<i>° ' "</i>	<i>I</i>
July 3	1 6 7.35	5 17 41.4	.4756945	18 16.0	15 19 7.0	1 36 54.4	.4745258
7	1 6 15.05	5 18 13.6	.4747188	18 0.4	15 20 35.3	1 36 55.5	.4745249
11	1 6 20.83	5 18 33.8	.4737388	17 44.8	15 22 3.7	1 36 56.6	.4745240
15	1 6 24.66	5 18 42.0	.4727587	17 29.1	15 23 32.0	1 36 57.8	.4745231
19	1 6 26.54	5 18 38.2	.4717830	17 13.4	15 25 0.3	1 36 58.9	.4745222
23	1 6 26.46	5 18 22.3	.4708163	16 57.6	15 26 28.6	1 37 0.1	.4745213
27	1 6 24.45	5 17 54.7	.4698633	16 41.9	15 27 56.8	1 37 1.2	.4745204
31	1 6 20.50	5 17 15.4	.4689286	16 26.1	15 29 25.0	1 37 2.4	.4745195
Aug. 4	1 6 14.68	5 16 24.9	.4680166	16 10.2	15 30 53.2	1 37 3.5	.4745186
8	1 6 7.02	5 15 23.3	.4671314	15 54.4	15 32 21.4	1 37 4.7	.4745177
12	1 5 57.56	5 14 11.0	.4662773	15 38.5	15 33 49.6	1 37 5.8	.4745168
16	1 5 46.33	5 12 48.4	.4654586	15 22.6	15 35 17.8	1 37 7.0	.4745159
20	1 5 33.42	5 11 15.9	.4646798	15 6.6	15 36 45.9	1 37 8.1	.4745150
24	1 5 18.89	5 9 34.0	.4639454	14 50.7	15 38 14.0	1 37 9.2	.4745141
28	1 5 2.85	5 7 43.4	.4632592	14 34.7	15 39 42.1	1 37 10.3	.4745132
Sept. 1	1 4 45.39	5 5 44.7	.4626248	14 18.7	15 41 10.2	1 37 11.5	.4745123
5	1 4 26.62	5 3 38.7	.4620454	14 2.6	15 42 38.2	1 37 12.6	.4745115
9	1 4 6.63	5 1 26.0	.4615239	13 46.6	15 44 6.2	1 37 13.7	.4745106
13	1 3 45.56	4 59 7.4	.4610636	13 30.5	15 45 34.2	1 37 14.8	.4745098
17	1 3 23.51	4 56 43.6	.4606677	13 14.4	15 47 2.3	1 37 16.0	.4745089
21	1 3 0.63	4 54 15.5	.4603386	12 58.3	15 48 30.3	1 37 17.1	.4745080
25	1 2 37.07	4 51 44.1	.4600782	12 42.1	15 49 58.4	1 37 18.3	.4745071
29	1 2 12.98	4 49 10.4	.4598881	12 26.0	15 51 26.4	1 37 19.4	.4745062
Oct. 3	1 1 48.50	4 46 35.2	.4597693	12 9.9	15 52 54.5	1 37 20.5	.4745053
7	1 1 23.78	4 43 59.6	.4597229	11 53.8	15 54 22.5	1 37 21.6	.4745044
11	1 0 58.96	4 41 24.4	.4597493	11 37.6	15 55 50.5	1 37 22.7	.4745035
15	1 0 34.21	4 38 50.7	.4598490	11 21.5	15 57 18.6	1 37 23.8	.4745027
19	1 0 9.70	4 36 19.4	.4600220	11 5.4	15 58 46.7	1 37 25.0	.4745018
23	0 59 45.58	4 33 51.5	.4602671	10 49.2	16 0 14.8	1 37 26.1	.4745010
27	0 59 22.02	4 31 28.1	.4605829	10 33.1	16 1 42.9	1 37 27.2	.4745001
31	0 58 59.16	4 29 10.0	.4609678	10 17.0	16 3 11.1	1 37 28.3	.4744993
Nov. 4	0 58 37.15	4 26 58.1	.4614196	10 0.9	16 4 39.3	1 37 29.4	.4744984
8	0 58 16.12	4 24 53.3	.4619364	9 44.8	16 6 7.5	1 37 30.5	.4744976
12	0 57 56.21	4 22 56.3	.4625156	9 28.8	16 7 35.7	1 37 31.7	.4744968
16	0 57 37.55	4 21 7.9	.4631542	9 12.8	16 9 4.0	1 37 32.8	.4744960
20	0 57 20.30	4 19 29.1	.4638486	8 56.8	16 10 32.3	1 37 33.9	.4744951
24	0 57 4.54	4 18 0.5	.4645947	8 40.8	16 12 0.6	1 37 35.0	.4744943
28	0 56 50.40	4 16 42.6	.4653883	8 24.8	16 13 28.9	1 37 36.1	.4744934
Dec. 2	0 56 37.95	4 15 35.9	.4662252	8 8.9	16 14 57.3	1 37 37.2	.4744926
6	0 56 27.28	4 14 40.9	.4671011	7 52.9	16 16 25.7	1 37 38.3	.4744917
10	0 56 18.45	4 13 38.0	.4680114	7 37.1	16 17 54.1	1 37 39.4	.4744909
14	0 56 11.56	4 13 27.5	.4689516	7 21.2	16 19 22.5	1 37 40.5	.4744900
18	0 56 6.65	4 13 9.7	.4699165	7 5.4	16 20 50.9	1 37 41.6	.4744892
22	0 56 3.77	4 13 5.0	.4709008	6 49.7	16 22 19.3	1 37 42.7	.4744884
26	0 56 2.92	4 13 13.3	.4718994	6 33.9	16 23 47.7	1 37 43.8	.4744876
30	0 56 4.14	4 13 34.6	.4729071	6 18.2	16 25 16.1	1 37 44.9	.4744868
34	0 56 7.42	4 14 8.9	.4739191	6 2.6	16 26 44.4	1 37 46.0	.4744860

PARALLAXES AND SEMIDIAMETERS. 301

Equatorial Horizontal Parallaxes and Semidiameters, At Mean Noon.

1868.	MERCURY.		VENUS.		MARS.		JUPITER.		SATURN.		URANUS.		
	H.P.	Semid.	H.P.	Semid.	H.P.	Semid.	H.P.	Semid.	H.P.	Semid.	H.P.	Semid.	
Jan.	1	6.3	2.4	5.7	5.5	3.6	2.3	1.6	18.2	0.8	7.6	0.5	2.1
	6	6.1	2.4	5.8	5.6	3.6	2.3	1.5	18.0	0.8	7.6	0.5	2.1
	11	6.0	2.3	5.9	5.7	3.6	2.3	1.5	17.8	0.8	7.7	0.5	2.1
	16	6.0	2.3	6.0	5.8	3.6	2.3	1.5	17.6	0.8	7.7	0.5	2.1
	21	6.0	2.3	6.0	5.9	3.6	2.3	1.5	17.5	0.8	7.8	0.5	2.1
Feb.	26	6.1	2.4	6.1	6.0	3.6	2.3	1.5	17.3	0.8	7.8	0.5	2.1
	31	6.3	2.5	6.3	6.1	3.6	2.3	1.5	17.2	0.8	7.9	0.5	2.1
	5	6.6	2.6	6.4	6.2	3.6	2.3	1.5	17.1	0.8	7.9	0.5	2.1
	10	7.1	2.8	6.5	6.3	3.6	2.3	1.5	17.0	0.8	8.0	0.5	2.1
	15	7.8	3.0	6.7	6.5	3.6	2.3	1.5	16.9	0.8	8.1	0.5	2.1
Mar.	20	8.9	3.5	6.8	6.6	3.7	2.4	1.5	16.8	0.9	8.1	0.5	2.0
	25	10.4	4.1	7.0	6.8	3.7	2.4	1.4	16.8	0.9	8.2	0.5	2.0
	1	12.1	4.7	7.1	6.9	3.7	2.4	1.4	16.8	0.9	8.3	0.5	2.0
	6	13.5	5.3	7.3	7.1	3.7	2.4	1.4	16.7	0.9	8.3	0.5	2.0
	11	14.0	5.5	7.6	7.3	3.7	2.4	1.4	16.7	0.9	8.4	0.5	2.0
Apr.	16	13.6	5.3	7.8	7.5	3.7	2.4	1.4	16.7	0.9	8.5	0.5	2.0
	21	12.6	4.9	8.0	7.8	3.7	2.4	1.4	16.8	0.9	8.5	0.5	2.0
	26	11.6	4.5	8.3	8.0	3.7	2.4	1.4	16.8	0.9	8.6	0.5	2.0
	31	10.6	4.1	8.6	8.3	3.8	2.5	1.4	16.8	0.9	8.6	0.5	2.0
	5	9.7	3.8	8.9	8.6	3.8	2.5	1.5	16.9	0.9	8.7	0.5	2.0
May	10	9.0	3.5	9.3	9.0	3.8	2.5	1.5	17.0	0.9	8.8	0.5	2.0
	15	8.3	3.2	9.7	9.4	3.8	2.5	1.5	17.1	0.9	8.8	0.5	2.0
	20	7.8	3.0	10.1	9.8	3.8	2.5	1.5	17.2	0.9	8.9	0.5	2.0
	25	7.3	2.8	10.6	10.3	3.8	2.5	1.5	17.3	0.9	8.9	0.5	2.0
	30	7.0	2.7	11.2	10.8	3.8	2.5	1.5	17.5	0.9	9.0	0.5	2.0
June	5	6.7	2.6	11.8	11.4	3.9	2.5	1.5	17.6	0.9	9.0	0.5	1.9
	10	6.5	2.5	12.5	12.1	3.9	2.5	1.5	17.8	1.0	9.0	0.5	1.9
	15	6.5	2.5	13.2	12.8	3.9	2.5	1.5	17.9	1.0	9.0	0.5	1.9
	20	6.6	2.6	14.0	13.6	3.9	2.5	1.6	18.1	1.0	9.0	0.5	1.9
	25	7.0	2.7	15.1	14.6	3.9	2.5	1.6	18.3	1.0	9.0	0.5	1.9
July	30	7.5	2.9	16.2	15.7	4.0	2.6	1.6	18.6	1.0	9.0	0.5	1.9
	4	8.1	3.1	17.4	16.9	4.0	2.6	1.6	18.8	1.0	9.0	0.4	1.9
	9	8.9	3.5	18.9	18.3	4.0	2.6	1.6	19.1	1.0	9.0	0.4	1.9
	14	9.9	3.9	20.4	19.8	4.0	2.6	1.7	19.3	0.9	9.0	0.4	1.9
	19	11.0	4.3	22.1	21.5	4.1	2.7	1.7	19.6	0.9	8.9	0.4	1.9
August	24	12.1	4.7	24.0	23.2	4.1	2.7	1.7	19.9	0.9	8.9	0.4	1.9
	29	13.3	5.2	25.8	25.0	4.1	2.7	1.7	20.2	0.9	8.8	0.4	1.9
	4	14.3	5.6	27.5	26.7	4.2	2.7	1.8	20.5	0.9	8.8	0.4	1.9

For Jupiter and Saturn, Polar Semid. = Equat. Semid. \times .927.

Equatorial Horizontal Parallaxes and Semidiameters,
At Mean Noon.

1868.		MERCURY.		VENUS.		MARS.		JUPITER.		SATURN.		URANUS.	
		H.P.	Semid.	H.P.	Semid.	H.P.	Semid.	H.P.	Semid.	H.P.	Semid.	H.P.	Semid.
July	4	14.3	5.6	27.5	26.7	4.2	2.7	1.8	20.5	0.9	8.8	0.4	1.9
	9	14.9	5.8	28.8	27.9	4.2	2.7	1.8	20.9	0.9	8.7	0.4	1.9
	14	14.8	5.8	29.5	28.6	4.2	2.8	1.8	21.2	0.9	8.7	0.4	1.9
	19	14.0	5.5	29.5	28.5	4.3	2.8	1.9	21.6	0.9	8.6	0.4	1.9
Aug.	24	12.7	4.9	28.7	27.8	4.3	2.8	1.9	21.9	0.9	8.6	0.4	1.9
	29	11.1	4.3	27.3	26.5	4.4	2.8	1.9	22.3	0.9	8.5	0.4	1.9
	3	9.6	3.7	25.7	24.8	4.4	2.9	1.9	22.6	0.9	8.4	0.4	1.9
	8	8.4	3.3	23.9	23.1	4.5	2.9	2.0	23.0	0.9	8.3	0.4	1.9
	13	7.5	2.9	22.1	21.4	4.5	2.9	2.0	23.3	0.9	8.3	0.4	1.9
	18	6.9	2.7	20.4	19.8	4.6	3.0	2.0	23.6	0.9	8.2	0.4	1.9
	23	6.5	2.5	18.9	18.3	4.6	3.0	2.1	23.9	0.9	8.1	0.4	1.9
	28	6.3	2.4	17.6	17.0	4.7	3.0	2.1	24.2	0.9	8.1	0.4	1.9
Sept.	2	6.2	2.4	16.3	15.8	4.8	3.1	2.1	24.5	0.8	8.0	0.4	1.9
	7	6.2	2.4	15.3	14.8	4.9	3.1	2.1	24.7	0.8	8.0	0.4	1.9
	12	6.3	2.5	14.3	13.9	4.9	3.2	2.2	24.9	0.8	7.9	0.4	1.9
	17	6.5	2.5	13.4	13.0	5.0	3.2	2.2	25.1	0.8	7.8	0.4	1.9
	22	6.7	2.6	12.7	12.3	5.1	3.3	2.2	25.2	0.8	7.7	0.4	2.0
	27	6.9	2.7	12.0	11.7	5.2	3.4	2.2	25.2	0.8	7.7	0.5	2.0
	2	7.3	2.8	11.4	11.0	5.3	3.5	2.2	25.2	0.8	7.6	0.5	2.0
	7	7.8	3.0	10.9	10.5	5.5	3.6	2.2	25.2	0.8	7.6	0.5	2.0
Oct.	12	8.4	3.3	10.4	10.0	5.6	3.6	2.2	25.1	0.8	7.5	0.5	2.0
	17	9.2	3.6	9.9	9.6	5.8	3.7	2.2	25.0	0.8	7.5	0.5	2.0
	22	10.2	4.0	9.5	9.2	5.9	3.8	2.1	24.8	0.8	7.5	0.5	2.0
	27	11.5	4.5	9.2	8.9	6.1	3.9	2.1	24.6	0.8	7.5	0.5	2.0
Nov.	1	12.5	4.9	8.8	8.5	6.3	4.0	2.1	24.3	0.8	7.5	0.5	2.0
	6	12.6	4.9	8.5	8.2	6.5	4.2	2.1	24.1	0.8	7.5	0.5	2.0
	11	11.5	4.5	8.2	8.0	6.7	4.3	2.0	23.8	0.8	7.4	0.5	2.1
	16	9.9	3.9	8.0	7.7	6.9	4.5	2.0	23.4	0.8	7.4	0.5	2.1
	21	8.6	3.4	7.7	7.5	7.1	4.6	2.0	23.1	0.8	7.4	0.5	2.1
	26	7.7	3.0	7.5	7.3	7.4	4.8	2.0	22.7	0.8	7.4	0.5	2.1
	1	7.1	2.8	7.3	7.1	7.7	5.0	1.9	22.4	0.8	7.4	0.5	2.1
	6	6.7	2.6	7.1	6.9	8.0	5.2	1.9	22.0	0.8	7.4	0.5	2.1
Dec.	11	6.4	2.5	6.9	6.7	8.3	5.4	1.9	21.7	0.8	7.4	0.5	2.1
	16	6.2	2.4	6.8	6.6	8.7	5.6	1.8	21.3	0.8	7.4	0.5	2.1
	21	6.0	2.3	6.6	6.4	9.1	5.9	1.8	20.9	0.8	7.4	0.5	2.1
	26	6.0	2.3	6.5	6.3	9.5	6.1	1.8	20.6	0.8	7.5	0.5	2.1
	31	5.9	2.3	6.4	6.2	9.9	6.4	1.7	20.3	0.8	7.5	0.5	2.1

For Jupiter and Saturn, Polar Semid. = Equat. Semid. \times .927.

PLANETARY
EPHEMERIDES
AT
TRANSIT.

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R. A. in Hour of Long.	Sid. Time of Semi- passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in Hour of Long.	Semidiameter.	Hor. Par.
	h m s	h m s	°	+	South.	South.	—		
Jan. 1	17 54 40.12	18 1 21.43	16.67	0.18	24 2 19.8	24 9 11.4	18.7	2.4	6.3
3	18 8 5.12	18 14 51.04	16.87	0.18	24 14 47.7	24 19 7.8	12.4	2.4	6.2
5	18 21 39.10	18 28 29.17	17.05	0.18	24 22 10.2	24 23 53.9	6.0	2.4	6.1
							+		
7	18 35 21.15	18 42 14.87	17.20	0.18	24 24 17.3	24 23 19.3	0.7	2.4	6.1
9	18 49 10.26	18 56 7.21	17.34	0.18	24 20 58.7	24 17 14.3	7.6	2.4	6.1
11	19 3 5.60	19 10 5.32	17.46	0.18	24 12 5.4	24 5 30.8	14.6	2.4	6.1
13	19 17 6.27	19 24 8.33	17.56	0.17	23 57 29.4	23 48 0.5	21.9	2.3	6.0
15	19 31 11.40	19 38 15.37	17.65	0.17	23 37 3.2	23 24 36.5	29.2	2.3	6.0
17	19 45 20.13	19 52 25.58	17.71	0.17	23 10 40.0	22 55 12.5	36.7	2.3	6.0
19	19 59 31.60	20 6 38.07	17.76	0.17	22 38 13.8	22 19 43.2	44.4	2.3	6.0
21	20 13 44.87	* * *	17.79	0.17	21 59 39.9	* * *	52.1	2.3	6.0
23	20 20 51.89	20 27 59.00	17.80	0.17	21 38 3.9	21 14 54.6	55.9	2.3	6.0
25	20 35 6.07	20 42 12.94	17.79	0.17	20 50 11.8	20 23 55.5	63.7	2.4	6.1
27	20 49 19.49	20 56 25.52	17.76	0.17	19 56 5.4	19 26 42.3	71.5	2.4	6.1
29	21 3 30.85	21 10 35.28	17.70	0.17	18 55 46.2	18 23 17.9	79.3	2.4	6.2
31	21 17 38.59	21 24 40.49	17.61	0.18	17 49 18.2	17 13 48.6	86.9	2.5	6.3
Feb. 1	21 31 40.70	21 38 38.82	17.47	0.18	16 36 50.7	15 58 26.7	94.2	2.5	6.4
4	21 45 34.49	21 52 27.20	17.26	0.18	15 18 39.3	14 37 31.7	101.2	2.5	6.5
6	21 59 16.43	22 6 1.49	16.97	0.18	13 55 8.8	13 11 34.9	107.5	2.6	6.7
8	22 12 41.68	22 19 16.13	16.56	0.18	12 26 56.4	11 41 20.5	112.9	2.7	6.9
10	22 25 43.85	22 32 3.74	16.00	0.18	10 54 55.8	10 7 52.2	116.9	2.8	7.1
12	22 38 14.53	22 44 14.78	15.24	0.19	9 20 21.2	8 32 36.1	119.2	2.9	7.3
14	22 50 2.90	22 55 37.17	14.23	0.20	7 44 51.7	6 57 24.8	119.1	3.0	7.6
16	23 0 55.71	23 5 56.52	12.92	0.21	6 10 33.7	5 24 38.0	116.1	3.1	8.0
18	23 10 37.53	23 14 56.59	11.27	0.22	4 39 59.3	3 56 59.8	109.7	3.3	8.4
20	23 18 51.56	23 22 20.37	9.26	0.23	3 16 2.6	2 37 31.6	99.5	3.5	8.9
22	23 25 21.02	23 27 51.73	6.91	0.24	2 1 49.9	1 29 20.3	85.4	3.7	9.5
24	23 29 50.96	23 31 17.54	4.29	0.26	1 0 24.6	0 35 22.9	67.6	3.9	10.1
26	23 32 10.63	23 32 29.91	1.51	0.28	0 14 33.5	North.	46.6	4.2	10.7
			—		North.	0 1 48.4			
28	23 32 15.60	23 31 28.51	1.28	0.29	0 13 30.8	0 20 25.6	23.3	4.4	11.4
Mar. 1	23 30 10.05	23 28 22.34	3.90	0.31	0 22 29.4	0 19 43.9	0.9	4.7	12.1
3	23 26 8.12	23 23 30.74	6.10	0.33	0 12 16.1	0 0 19.2	24.4	4.9	12.7
					South.				
5	23 20 34.13	23 17 22.61	7.70	0.34	0 15 47.6	South.	45.2	5.1	13.2
7	{ 23 14 35.57 }	23 7 5.60	{ 8.55 }	{ 0.36 }	{ 0 54 37.4 }	0 35 39.4	{ 61.5 }	{ 5.3 }	{ 13.6 }
9	23 3 41.50	23 0 25.45	8.36	0.36	2 21 58.3	1 52 33.5	74.9	5.4	13.9
11	22 57 21.25	22 54 32.14	7.38	0.36	3 22 46.7	2 52 14.7	76.2	5.4	13.9
						3 53 1.4			
13	22 52 0.75	22 49 49.17	5.91	0.36	4 22 29.6	4 50 45.5	72.3	5.4	13.8
15	22 47 58.88	22 46 30.87	4.14	0.36	5 17 28.2	5 42 20.3	64.6	5.3	13.6
17	22 45 25.65	22 44 43.33	2.24	0.35	6 5 9.0	6 25 44.0	54.3	5.1	13.2

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascension on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid. passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in Hour of Long.	Semidiameter.	Hor. Par.
Mar. 19	h m s	h m s	—	s	South.	South.	—	—	—
	22 44 23.69	22 44 26.27	0.35	0.34	6 43 59.1	6 59 30.1	42.7	5.0	12.8
			+						
	21 22 44 50.41	22 45 35.30	1.44	0.32	7 13 14.9	7 24 13.5	30.5	4.8	12.4
	23 22 46 40.00	22 48 3.53	3.09	0.31	7 32 46.7	7 38 56.8	18.4	4.7	12.0
	25 22 49 44.93	22 51 43.18	4.58	0.30	7 42 46.1	7 44 18.4	6.7	4.5	11.6
							+		
	27 22 53 57.30	22 56 26.30	5.90	0.29	7 43 36.8	7 40 45.4	4.5	4.4	11.2
	29 22 59 9.30	23 2 5.43	7.07	0.28	7 35 47.8	7 28 47.9	15.0	4.2	10.8
	31 23 5 13.86	23 8 33.86	8.10	0.27	7 19 49.7	7 8 56.7	24.8	4.0	10.4
Apr.	2 23 12 4.66	23 15 45.68	9.00	0.26	6 56 12.8	6 41 41.3	34.1	3.9	10.1
	4 23 19 36.29	23 23 35.94	9.80	0.25	6 25 25.6	6 7 28.8	42.8	3.8	9.7
	6 23 27 44.16	23 32 0.53	10.52	0.25	5 47 54.1	5 26 44.3	50.9	3.7	9.4
	8 23 36 24.63	23 40 56.13	11.16	0.24	5 4 2.4	4 39 50.8	58.6	3.5	9.1
	10 23 45 34.71	23 50 20.10	11.75	0.23	4 14 12.3	3 47 9.4	65.9	3.4	8.8
	12 23 55 12.07	0 0 10.46	12.30	0.22	3 18 44.5	2 48 59.9	72.7	3.3	8.5
	14 0 5 15.08	0 10 25.83	12.82	0.22	2 17 57.9	1 45 40.7	79.2	3.2	8.3
	16 0 15 42.61	0 21 5.42	13.33	0.21	1 12 10.5	0 37 29.2	85.3	3.1	8.1
	18 0 26 34.17	0 32 8.90	13.83	0.21	0 1 39.0	North.	91.0	3.1	7.9
					North.	0 35 18.0			
May	20 0 37 49.69	0 43 36.56	14.33	0.20	1 13 19.3	1 52 23.2	96.4	3.0	7.7
	22 0 49 29.60	0 55 28.97	14.84	0.19	2 32 27.4	3 13 29.5	101.4	2.9	7.5
	24 1 1 34.79	1 7 47.24	15.38	0.19	3 55 27.0	4 38 17.9	106.0	2.8	7.3
	26 1 14 6.52	1 20 32.82	15.95	0.18	5 21 58.6	6 6 26.8	110.2	2.8	7.2
	28 1 27 6.37	1 33 47.42	16.55	0.18	6 51 39.0	7 37 31.7	113.9	2.7	7.0
	30 1 40 36.21	1 47 33.03	17.20	0.18	8 24 1.3	9 11 3.3	116.9	2.7	6.9
	2 1 54 38.11	2 1 51.70	17.89	0.18	9 58 33.1	10 46 25.1	119.2	2.7	6.8
	4 2 9 14.03	2 16 45.29	18.62	0.18	11 34 33.5	12 22 51.7	120.6	2.6	6.7
	6 2 24 25.62	2 32 15.12	19.37	0.18	13 11 12.4	13 59 27.4	120.8	2.6	6.6
	8 2 40 13.79	2 48 21.56	20.13	0.18	14 47 27.6	15 35 3.2	119.6	2.5	6.5
June	10 2 56 38.26	3 5 3.58	20.88	0.18	16 22 3.7	17 8 17.4	116.6	2.5	6.5
	12 3 13 37.09	3 22 18.16	21.56	0.18	17 53 32.8	18 37 37.1	111.8	2.5	6.5
	14 * * *	3 31 6.06	*	*	* * *	19 20 17.5	*	*	*
	16 3 39 59.92	3 48 58.72	22.35	0.18	20 1 21.8	20 40 37.6	100.5	2.5	6.5
	18 3 58 1.29	4 7 6.37	22.67	0.18	21 17 53.3	21 52 58.1	90.5	2.5	6.5
	20 4 16 12.64	4 25 18.72	22.77	0.19	22 25 42.8	22 55 59.4	78.8	2.6	6.6
	22 4 34 23.25	4 43 24.87	22.64	0.19	23 23 41.8	23 48 45.2	66.0	2.6	6.7
	24 4 52 22.22	5 1 14.07	22.28	0.20	24 11 6.9	24 30 45.8	52.5	2.7	6.9
	26 5 9 59.29	5 18 36.79	21.73	0.20	24 47 42.2	25 1 58.0	39.0	2.8	7.1
	28 5 27 5.63	5 35 24.93	21.01	0.21	25 13 36.3	25 22 40.9	25.9	2.8	7.3
June	30 5 43 33.95	5 51 32.05	20.15	0.22	25 29 16.9	25 33 30.1	13.5	2.9	7.5
	1 5 59 18.61	6 6 53.17	19.19	0.22	25 35 26.4	25 35 12.3	2.1	3.0	7.7
	3 6 14 15.29	6 21 24.57	18.16	0.23	25 32 54.8	25 28 40.4	8.2	3.1	8.0

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascension on Intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid. passing Merid.	Apparent Declination.	Declination on Intermediate Day.	Var. of Decl. in Hour of Long.	Semidiameter.	Hor. Par.
	h m s	h m s	+	s	North. ° ' "	North. ° ' "	"	"	"
Aug. 24	10 8 49.89	10 16 26.14	19.13	0.18	13 19 38.6	12 37 23.4	104.2	2.5	6.4
26	10 23 56.19	* * *	18.62	0.17	11 54 6.4	* * *	109.4	2.5	6.4
28	10 31 19.82	* * *	18.35	0.17	11 9 56.1	* * *	111.4	2.5	6.4
30	10 45 47.23	10 38 36.85	17.79	0.17	9 39 28.5	10 25 1.0	114.5	2.5	6.3
Sept. 1	10 59 48.22	10 52 51.00	17.25	0.16	8 6 58.6	8 53 25.5	116.5	2.4	6.2
3	11 13 23.54	11 6 39.02	16.73	0.16	6 33 15.2	7 20 13.4	117.6	2.4	6.2
5	11 26 34.59	11 20 2.01	16.24	0.16	4 58 58.8	5 46 9.0	117.9	2.4	6.2
7	11 39 23.08	11 33 1.55	15.79	0.17	3 24 42.4	4 11 48.7	117.6	2.4	6.2
9	11 51 50.85	11 45 39.44	15.38	0.17	1 50 54.2	2 37 43.4	116.8	2.5	6.3
11	12 3 59.71	11 57 57.53	15.00	0.17	0 17 56.4	1 4 17.6	115.5	2.5	6.3
13	12 15 51.44	12 9 57.61	14.66	0.17	South. 0 28 7.4	South. 0 28 7.4	113.9	2.5	6.3
15	12 27 27.65	12 21 41.39	14.35	0.17	1 13 51.4	1 59 13.8	111.9	2.5	6.4
17	12 38 49.75	12 33 10.37	14.07	0.17	2 44 12.4	3 28 45.7	109.7	2.5	6.5
19	12 49 59.01	12 44 25.91	13.82	0.17	4 12 52.0	4 56 29.8	107.2	2.5	6.5
21	13 0 56.40	12 55 29.13	13.58	0.17	5 39 37.0	6 22 12.6	104.4	2.6	6.6
23	13 11 42.71	13 6 20.91	13.35	0.17	7 4 15.0	7 45 42.6	101.4	2.6	6.7
25	13 22 18.39	13 17 1.86	13.13	0.18	8 26 33.8	9 6 47.3	98.1	2.7	6.8
27	13 32 43.60	13 27 32.31	12.92	0.18	9 46 21.7	10 25 15.3	94.6	2.7	6.9
29	13 42 58.17	13 37 52.25	12.69	0.18	11 3 26.7	11 40 53.9	90.8	2.8	7.1
Oct. 1	13 53 1.43	13 48 1.28	12.44	0.19	12 17 35.7	12 53 30.2	86.7	2.8	7.2
3	14 2 52.24	13 57 58.49	12.17	0.20	13 28 35.3	14 2 49.4	82.2	2.9	7.4
5	14 12 28.85	14 7 42.46	11.85	0.21	14 36 10.2	15 8 35.7	77.4	3.0	7.6
7	14 21 48.69	14 17 11.06	11.47	0.21	15 40 3.5	16 10 31.0	72.2	3.0	7.8
9	14 30 48.24	14 26 21.27	11.00	0.22	16 39 55.6	17 8 14.2	66.4	3.1	8.0
11	14 39 22.82	14 35 8.99	10.42	0.23	17 35 23.6	18 1 20.4	60.0	3.2	8.3
13	14 47 26.24	14 43 28.87	9.70	0.24	18 26 0.9	18 49 20.6	52.9	3.4	8.6
15	14 54 50.59	14 51 13.86	8.79	0.25	19 11 15.2	19 31 39.4	44.9	3.5	8.9
17	15 1 25.85	14 58 15.09	7.64	0.25	19 50 27.5	20 7 33.5	35.8	3.6	9.2
19	15 6 59.49	15 4 21.25	6.21	0.26	20 22 50.1	20 36 9.8	25.3	3.7	9.6
21	15 11 16.51	15 9 18.62	4.44	0.28	20 47 23.7	20 56 22.3	13.2	3.9	10.0
23	15 13 59.52	15 12 50.92	2.29	0.29	21 2 55.0	21 6 49.7	+	4.1	10.5
25	15 14 49.87	15 14 39.93	0.25	0.31	21 7 54.1	21 5 54.0	1.1	4.3	11.0
27	15 13 30.16	15 14 27.21	3.11	0.32	21 0 35.0	20 51 42.3	17.6	4.5	11.5
29	15 9 48.73	15 11 57.49	6.11	0.33	20 39 1.6	20 22 20.0	36.6	4.7	12.0
31	15 3 46.42	15 7 4.43	8.91	0.34	20 1 27.8	19 36 20.5	57.5	4.8	12.4
Nov. 2	14 55 43.95	14 59 57.97	11.03	0.34	19 6 59.7	18 33 38.2	78.5	4.9	12.6
4	14 46 56.23	14 51 10.79	11.37	0.34	17 56 39.3	17 16 40.3	96.5	4.9	12.6
6	14 32 33.27	14 36 58.39	10.60	0.33	16 34 31.4	15 8 3.2	102.1	4.8	12.4
8	14 25 1.45	14 28 31.95	8.05	0.32	14 26 8.9	13 46 44.9	84.3	4.7	12.0
10	14 19 52.91	14 22 7.20	4.70	0.31	13 10 56.1	12 39 35.3	58.9	4.5	11.5
		14 18 20.58			12 13 20.7	11 52 35.7			

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid' passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in Hour of Long.	Semidiameter.	Hor. Par.
	h m s	h m s	—	s	South. ° ' "	South. ° ' "	+	"	"
Nov. 12	14 17 30.69	14 17 22.47	1.21	0.29	11 37 29.1	11 27 57.3	30.7	4.2	10.9
	14 17 54.17	14 19 3.41	2.12	0.28	11 23 46.9	11 24 37.1	4.0	4.0	10.3
16	14 20 47.32	14 23 2.86	5.01	0.26	11 30 2.4	11 39 35.3	18.9	3.8	9.7
18	14 25 47.02	14 28 56.77	7.39	0.24	11 52 46.7	12 9 8.1	37.1	3.6	9.1
20	14 32 29.36	14 36 22.16	9.30	0.23	12 28 12.5	12 49 34.4	50.7	3.4	8.6
22	14 40 32.84	14 44 59.29	10.79	0.22	13 12 50.6	13 37 39.8	60.3	3.2	8.2
24	14 49 39.68	14 54 32.37	11.95	0.22	14 3 42.7	14 30 42.5	66.4	3.1	7.9
26	14 59 35.91	15 4 49.11	12.86	0.21	14 58 24.3	15 26 34.5	69.9	3.0	7.6
28	15 10 10.90	15 15 40.37	13.57	0.20	15 55 1.5	16 23 35.1	71.3	2.9	7.3
30	15 21 16.72	15 26 59.30	14.15	0.19	16 52 5.8	17 20 26.0	71.1	2.8	7.1
Dec. 2	15 32 47.51	15 38 40.89	14.62	0.19	17 48 28.5	18 16 7.1	69.6	2.7	6.9
4	15 44 39.01	15 50 41.53	15.02	0.19	18 43 16.2	19 9 50.7	67.2	2.6	6.7
6	15 56 48.12	16 2 58.52	15.36	0.19	19 35 46.8	20 1 0.1	64.0	2.6	6.6
8	16 9 12.51	16 15 29.90	15.66	0.18	20 25 26.9	20 49 4.2	60.1	2.5	6.5
10	16 21 50.52	16 28 14.22	15.92	0.18	21 11 49.1	21 33 39.2	55.7	2.5	6.4
12	16 34 40.86	16 41 10.35	16.17	0.18	21 54 31.4	22 14 23.8	50.9	2.5	6.3
14	16 47 42.54	16 54 17.36	16.40	0.18	22 33 13.9	22 51 0.0	45.8	2.4	6.2
16	17 0 54.71	17 7 34.53	16.61	0.18	23 7 40.1	23 23 12.3	40.3	2.4	6.1
18	17 14 16.71	17 21 1.17	16.81	0.18	23 37 35.0	23 50 46.6	34.5	2.4	6.1
20	17 27 47.87	17 34 36.69	16.99	0.18	24 2 45.5	24 13 30.0	28.4	2.4	6.1
22	17 41 27.57	17 48 20.44	17.16	0.17	24 22 58.7	24 31 10.4	22.1	2.3	6.0
24	17 55 15.20	18 2 11.78	17.32	0.17	24 38 3.6	24 43 36.6	15.6	2.3	6.0
26	18 9 10.09	18 16 10.04	17.46	0.17	24 47 48.6	24 50 37.9	8.8	2.3	6.0
28	18 23 11.52	18 30 14.44	17.59	0.17	24 52 3.6	24 52 4.4	1.8	2.3	6.0
30	18 37 18.71	18 44 24.18	17.70	0.17	24 50 39.0		5.4	2.3	5.9
32	18 51 30.78		17.80	0.17	24 43 25.2	24 47 46.3	12.7	2.3	5.9

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid ^r passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Decl. in Hour of Long.	Semidiameter.	Hor. Par.
					South.	South.			
Jan.	h m s	h m s	+	+	° ' "	° ' "	+	"	"
1	20 29 27.8	20 34 13.26	12.96	0.39	20 43 29.5	20 25 45.0	43.6	5.5	5.7
3	20 39 22.41	20 44 30.22	12.85	0.39	20 7 25.3	19 48 31.0	46.5	5.5	5.7
5	20 49 36.66	20 54 41.71	12.74	0.40	19 29 2.9	19 9 1.6	49.4	5.6	5.8
7	20 59 45.38	21 4 47.66	12.62	0.40	18 48 27.8	18 27 22.4	52.1	5.6	5.8
9	21 9 48.56	21 14 48.05	12.51	0.40	18 5 46.1	17 43 39.7	54.6	5.6	5.8
11	21 19 46.16	21 24 42.89	12.39	0.40	17 21 4.0	16 57 59.5	57.1	5.7	5.9
13	21 29 38.25	21 34 32.25	12.28	0.40	16 34 27.3	16 10 28.0	59.4	5.7	5.9
15	21 39 24.90	21 44 16.22	12.17	0.40	15 46 2.3	15 21 11.2	61.6	5.7	5.9
17	21 49 6.23	21 53 54.93	12.06	0.40	14 55 55.5	14 30 15.9	63.7	5.8	6.0
19	21 58 42.36	22 3 28.53	11.95	0.40	14 4 13.1	13 37 48.0	65.6	5.8	6.0
21	22 8 13.46	22 12 57.18	11.85	0.41	13 11 1.3	12 43 53.9	67.4	5.9	6.1
23	22 17 39.71	22 22 21.06	11.75	0.41	12 16 26.6	11 48 40.1	69.0	5.9	6.1
25	22 27 1.27	22 31 40.37	11.65	0.41	11 20 35.4	10 52 13.2	70.5	5.9	6.1
27	22 36 18.38	22 40 55.32	11.56	0.41	10 23 34.3	9 54 39.5	71.9	6.0	6.2
29	22 45 31.23	22 50 6.14	11.47	0.41	9 25 29.5	8 56 5.2	73.2	6.0	6.2
31	22 54 40.08	22 59 13.09	11.39	0.41	8 26 27.3	7 56 36.7	74.3	6.1	6.3
Feb.	23 3 45.19	23 8 16.41	11.32	0.41	7 26 34.1	6 56 20.2	75.3	6.1	6.3
4	23 12 46.81	23 17 16.42	11.25	0.42	6 25 55.9	5 55 21.9	76.2	6.2	6.4
6	23 21 45.26	23 26 13.37	11.19	0.42	5 24 39.1	4 53 48.1	77.0	6.2	6.4
8	23 30 40.80	23 35 7.59	11.13	0.42	4 22 49.7	3 51 44.5	77.6	6.3	6.5
10	23 39 33.78	23 43 59.42	11.08	0.42	3 20 33.5	2 49 17.3	78.1	6.3	6.5
12	23 48 24.55	23 52 49.20	11.04	0.42	2 17 56.7	1 46 32.2	78.5	6.4	6.6
14	23 57 13.42	0 1 37.25	11.01	0.42	1 15 4.8	0 43 35.0	78.7	6.4	6.6
16	0 6 0.73	0 10 23.91	10.99	0.43	0 12 3.7	North. 0 19 28.5	78.8	6.5	6.7
18	0 14 46.83	0 19 9.50	10.96	0.44	0 51 1.0	1 22 32.8	78.8	6.6	6.8
20	0 23 31.98	0 27 54.31	10.93	0.44	1 54 3.3	2 25 31.7	78.8	6.6	6.8
22	0 32 16.51	0 36 38.65	10.92	0.45	2 56 57.4	3 28 19.7	78.6	6.7	6.9
24	0 41 0.74	0 45 22.81	10.92	0.45	3 59 37.8	4 30 51.0	78.2	6.7	6.9
26	0 49 44.90	0 54 7.05	10.92	0.46	5 1 58.4	5 32 59.5	77.7	6.8	7.0
28	0 58 29.28	1 2 51.63	10.93	0.46	6 3 53.5	6 34 39.7	77.1	6.9	7.1
Mar.	1 7 14.14	1 11 36.83	10.94	0.46	7 5 17.3	7 35 45.7	76.4	7.0	7.2
3	1 15 59.72	1 20 22.86	10.96	0.47	8 6 4.1	8 36 11.7	75.5	7.0	7.2
5	1 24 46.26	1 29 9.95	10.98	0.47	9 6 7.9	9 35 52.0	74.6	7.1	7.3
7	1 33 33.96	1 37 58.33	11.01	0.48	10 5 23.3	10 34 41.0	73.5	7.2	7.4
9	1 42 23.08	1 46 48.23	11.04	0.49	11 3 44.5	11 32 33.0	72.3	7.3	7.5
11	1 51 13.83	1 55 39.89	11.08	0.50	12 1 6.0	12 29 22.7	71.0	7.4	7.6
13	2 0 6.45	2 4 33.53	11.12	0.50	12 57 22.5	13 25 4.7	69.6	7.4	7.6
15	2 9 1.13	2 13 29.29	11.16	0.51	13 52 28.6	14 19 33.5	68.1	7.5	7.7
17	2 17 58.01	2 22 27.32	11.21	0.52	14 46 18.7	15 12 43.5	66.5	7.6	7.8
19	2 26 57.22	2 31 27.72	11.26	0.53	15 38 47.4	16 4 29.7	64.7	7.7	7.9
21	2 35 58.83	2 40 30.55	11.31	0.54	16 29 49.8	16 54 46.8	62.8	7.7	8.0
23	2 45 2.90	2 49 35.87	11.36	0.55	17 19 20.2	17 43 29.2	60.9	7.8	8.1

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

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	h m s	h m s	+ s	s	North. ° ' "	North. ° ' "	+ "	"	"
Mar. 25	2 54 9.45	2 58 43.64	11.41	0.55	18 7 13.3	18 30 31.9	58.8	7.9	8.2
27	3 3 18.44	3 7 53.82	11.46	0.56	18 53 24.4	19 15 50.2	56.6	8.0	8.3
29	3 12 29.78	3 17 6.29	11.51	0.57	19 37 48.4	19 59 18.6	54.3	8.2	8.5
31	3 21 43.34	3 26 20.89	11.55	0.58	20 20 20.1	20 40 52.4	51.9	8.3	8.6
Apr. 2	3 30 58.93	3 35 37.42	11.59	0.60	21 0 54.9	21 20 27.1	49.5	8.4	8.7
4	3 40 16.35	3 44 55.67	11.63	0.61	21 39 28.4	21 57 58.2	46.9	8.5	8.8
6	3 49 35.35	3 54 15.37	11.66	0.62	22 15 56.2	22 33 21.9	44.2	8.7	9.0
8	3 58 55.68	4 3 36.27	11.68	0.63	22 50 14.7	23 6 34.3	41.5	8.8	9.1
10	4 8 17.08	4 12 58.06	11.70	0.64	23 22 20.2	23 37 32.1	38.7	9.0	9.3
12	4 17 39.18	4 22 20.36	11.71	0.66	23 52 9.5	24 6 12.2	35.8	9.1	9.4
14	4 27 1.58	4 31 42.77	11.72	0.68	24 19 39.9	24 32 32.3	32.9	9.3	9.6
16	4 36 23.86	4 41 4.80	11.71	0.70	24 44 49.0	24 56 29.8	29.9	9.5	9.8
18	4 45 45.51	4 50 25.93	11.69	0.71	25 7 34.5	25 18 2.8	26.9	9.7	10.0
20	4 55 5.99	4 59 45.61	11.66	0.73	25 27 54.7	25 37 10.1	23.9	9.8	10.1
22	5 4 24.72	5 9 3.24	11.62	0.74	25 45 48.8	25 53 50.7	20.8	10.0	10.3
24	5 13 41.07	5 18 18.13	11.56	0.75	26 1 15.8	26 8 4.1	17.8	10.2	10.5
26	5 22 54.31	5 27 29.53	11.49	0.77	26 14 15.6	26 19 50.4	14.7	10.4	10.7
28	5 32 3.68	5 36 36.66	11.40	0.78	26 24 48.6	26 29 10.2	11.7	10.6	10.9
30	5 41 8.36	5 45 38.69	11.29	0.80	26 32 55.4	26 36 4.2	8.6	10.8	11.2
May 2	5 50 7.55	5 54 34.82	11.17	0.82	26 38 37.0	26 40 34.1	5.6	11.0	11.4
4	5 59 0.42	6 3 24.23	11.03	0.84	26 41 55.7	26 42 42.1	2.7	11.2	11.6
6	6 7 46.16	6 12 6.10	10.87	0.86	26 42 53.7	26 42 30.8	0.2	11.5	11.9
8	6 16 23.95	6 20 39.61	10.70	0.88	26 41 33.9	26 40 3.4	3.1	11.8	12.2
10	6 24 52.96	6 29 3.90	10.51	0.90	26 37 59.8	26 35 23.6	5.8	12.1	12.5
12	6 33 12.32	6 37 18.12	10.30	0.92	26 32 15.4	26 28 35.7	8.5	12.4	12.8
14	6 41 21.17	6 45 21.37	10.07	0.94	26 24 25.1	26 19 44.3	11.1	12.7	13.1
16	6 49 18.60	6 53 12.76	9.82	0.96	26 14 34.0	26 8 54.8	13.5	13.0	13.4
18	6 57 3.73	7 0 51.38	9.55	0.98	26 2 47.4	25 56 12.7	15.9	13.3	13.7
20	7 4 35.60	7 8 16.26	9.27	1.01	25 49 11.3	25 41 44.0	18.1	13.7	14.1
22	7 11 53.21	7 15 26.33	8.96	1.04	25 33 51.6	25 25 35.0	20.2	14.0	14.5
24	7 18 55.46	7 22 20.47	8.63	1.07	25 16 55.2	25 7 53.1	22.1	14.4	14.9
26	7 25 41.22	7 28 57.55	8.27	1.10	24 58 29.5	24 48 45.3	23.9	14.8	15.3
28	7 32 9.29	7 35 16.28	7.89	1.13	24 38 41.7	24 28 19.5	25.5	15.3	15.8
30	7 38 18.36	7 41 15.38	7.48	1.16	24 17 39.7	24 6 43.2	27.0	15.7	16.2
June 1	7 44 7.18	7 46 53.60	7.05	1.19	23 55 31.2	23 44 4.8	28.3	16.2	16.7
3	7 49 34.45	7 52 9.57	6.58	1.22	23 32 24.9	23 20 32.6	29.4	16.7	17.2
5	7 54 38.77	7 57 1.88	6.09	1.25	23 8 29.1	22 56 15.4	30.4	17.1	17.7
7	7 59 18.72	8 1 29.11	5.57	1.28	22 43 52.6	22 31 21.8	31.2	17.7	18.3
9	8 3 32.87	8 5 29.79	5.01	1.32	22 18 44.2	22 6 1.0	31.7	18.3	18.9
11	8 7 19.67	8 9 2.31	4.43	1.36	21 53 13.3	21 40 22.3	32.0	18.9	19.5
13	8 10 37.51	8 12 5.07	3.81	1.40	21 27 29.2	21 14 35.0	32.2	19.5	20.1
15	8 13 24.80	8 14 36.48	3.15	1.43	21 1 41.0	20 48 48.4	32.2	20.1	20.8

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	h m s	h m s	+ s	s	North ° ' "	North. ° ' "	— "	"	"
June 17	8 15 39.90	8 16 34.86	2.47	1.47	20 35 58.3	20 23 12.1	32.0	20.8	21.5
19	8 17 21.14	8 17 58.55	1.74	1.52	20 10 30.8	19 57 55.5	32.6	21.5	22.2
21	8 18 26.88	8 18 45.93	0.99	1.56	19 45 27.7	19 33 8.4	31.0	22.2	22.9
23	8 18 55.52	8 18 55.49	0.20	1.61	19 20 58.6	19 8 59.6	30.2	22.9	23.6
25	8 18 45.70	8 18 26.02	0.61	1.66	18 57 12.6	18 45 38.6	29.2	23.6	24.4
27	8 17 56.38	8 17 16.74	1.44	1.71	18 34 18.6	18 23 13.5	28.0	24.3	25.1
29	8 16 26.12	8 15 27.57	2.27	1.76	18 12 24.2	18 1 51.8	26.7	25.0	25.8
July 1	8 14 18.18	8 12 59.12	3.09	1.80	17 51 37.1	17 41 40.6	25.2	25.7	26.5
3	8 11 30.63	8 9 53.00	3.88	1.84	17 32 3.2	17 22 45.6	23.6	26.3	27.2
5	8 8 6.56	8 6 11.77	4.61	1.88	17 13 48.3	17 5 12.0	21.9	26.9	27.8
7	8 4 9.12	8 1 59.19	5.26	1.91	16 56 57.3	16 49 4.5	20.2	27.5	28.4
9	7 59 42.64	7 57 20.18	5.81	1.94	16 41 33.9	16 34 26.1	18.4	28.0	28.9
11	7 54 52.57	7 52 20.67	6.24	1.96	16 27 41.3	16 21 19.7	16.4	28.3	29.2
13	7 49 45.37	7 47 7.57	6.52	1.98	16 15 21.8	16 9 48.0	14.4	28.5	29.4
15	7 44 48.31	7 39 8.77	6.08	1.99	16 4 38.8	15 55 31.8	12.4	28.7	29.6
17	7 36 30.54	7 33 54.56	6.55	1.98	15 51 35.2	15 48 3.2	9.3	28.7	29.6
19	7 31 21.71	7 28 52.88	6.29	1.97	15 44 55.8	15 42 13.1	7.3	28.5	29.4
21	7 26 28.89	7 24 10.50	5.88	1.95	15 39 54.8	15 38 0.6	5.3	28.2	29.1
23	7 21 58.45	7 19 53.39	5.36	1.93	15 36 30.2	15 35 23.1	3.3	27.8	28.7
25	7 17 55.93	7 16 6.61	4.72	1.90	15 34 38.8	15 34 16.6	1.4	27.3	28.2
27	7 14 25.89	7 12 54.17	4.01	1.86	15 34 16.0	15 34 36.0	0.4	26.8	27.7
29	7 11 31.76	7 10 18.92	3.23	1.82	15 35 15.7	15 36 13.9	2.0	26.2	27.1
31	7 9 15.85	7 8 22.68	2.42	1.78	15 37 29.9	15 39 2.3	3.5	25.6	26.4
Aug. 2	7 7 39.48	7 7 6.31	1.59	1.73	15 40 49.9	15 42 51.3	4.8	24.9	25.7
4	7 6 43.14	7 6 29.91	0.76	1.68	15 45 5.3	15 47 30.4	5.8	24.2	25.0
6	7 6 26.52	7 6 32.85	0.06	1.63	15 50 5.3	15 52 48.3	6.6	23.5	24.3
8	7 6 48.76	7 7 14.08	0.86	1.58	15 55 37.9	15 58 32.9	7.2	22.8	23.5
10	7 7 48.60	7 8 32.10	1.63	1.53	16 1 31.7	16 4 32.8	7.5	22.1	22.8
12	7 9 24.35	7 10 25.11	2.35	1.48	16 7 34.8	16 10 36.3	7.6	21.4	22.1
14	7 11 34.14	7 12 51.17	3.04	1.43	16 13 35.8	16 16 32.0	7.4	20.7	21.4
16	7 14 15.92	7 15 48.16	3.69	1.39	16 19 23.5	16 22 9.0	7.0	20.1	20.8
18	7 17 27.63	7 19 14.09	4.29	1.35	16 24 47.3	16 27 17.0	6.4	19.5	20.1
20	7 21 7.28	7 23 6.99	4.85	1.31	16 29 37.0	16 31 46.0	5.6	18.9	19.5
22	7 25 12.99	7 27 25.06	5.38	1.28	16 33 42.9	16 35 26.7	4.6	18.3	18.9
24	7 29 42.98	7 32 6.55	5.86	1.24	16 36 56.3	16 38 10.6	3.4	17.8	18.4
26	7 34 35.56	7 37 9.80	6.32	1.20	16 39 8.5	16 39 49.2	2.0	17.2	17.8
28	7 39 49.08	7 42 33.22	6.74	1.17	16 40 11.9	16 40 15.4	0.5	16.8	17.3
30	7 45 22.03	7 48 15.33	7.13	1.14	16 39 59.1	16 39 22.0	1.1	16.3	16.8
Sept. 1	7 51 12.95	7 54 14.72	7.49	1.11	16 38 23.5	16 37 3.0	2.9	15.9	16.4
3	7 57 20.46	8 0 30.02	7.82	1.08	16 35 19.5	16 33 12.6	4.8	15.4	15.9
5	8 3 43.25	8 6 59.99	8.12	1.04	16 30 41.5	16 27 45.9	6.8	15.0	15.5

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Sept. 7	h m s	h m s	+	s	North.	North.	—	"	"
	8 10 20.09	8 13 43.39	8.40	1.01	16 24 25.2	16 20 38.6	8.9	14.6	15.1
	9 8 17 9.77	8 20 39.06	8.66	0.98	16 16 25.9	16 11 46.9	11.1	14.2	14.7
	11 8 24 11.13	8 27 45.84	8.89	0.96	16 6 41.1	16 1 8.3	13.3	13.9	14.3
	13 8 31 23.05	8 35 2.63	9.10	0.94	15 55 8.1	15 48 40.4	15.6	13.6	14.0
	15 8 38 44.47	8 42 28.46	9.29	0.92	15 41 44.9	15 34 21.4	17.9	13.2	13.6
	17 8 46 14.49	8 50 2.45	9.46	0.89	15 26 29.9	15 18 10.0	20.2	12.9	13.3
	19 8 53 52.23	8 57 43.74	9.61	0.87	15 9 22.1	15 0 5.9	22.6	12.6	13.0
	21 9 1 36.91	9 5 31.63	9.75	0.85	14 50 21.2	14 40 8.1	24.9	12.3	12.7
	23 9 9 27.83	9 13 25.42	9.87	0.83	14 29 26.8	14 18 17.4	27.3	12.0	12.4
	25 9 17 24.33	9 21 24.51	9.98	0.81	14 6 39.7	13 54 34.0	29.6	11.8	12.2
	27 9 25 25.87	9 29 28.35	10.08	0.79	13 42 0.4	13 28 59.1	32.0	11.6	11.9
	29 9 33 31.90	9 37 36.45	10.17	0.77	13 15 30.0	13 1 33.6	34.3	11.4	11.7
Oct. 1	9 41 41.94	9 45 48.31	10.25	0.74	12 47 9.9	12 32 19.4	36.5	11.1	11.4
	3 9 49 55.52	9 54 3.54	10.32	0.73	12 17 2.2	12 1 18.9	38.7	10.9	11.2
	5 9 58 12.31	10 2 21.78	10.38	0.72	11 45 9.4	11 28 34.2	40.9	10.7	11.0
	7 10 6 31.90	10 10 42.63	10.43	0.71	11 11 33.7	10 54 8.4	43.0	10.5	10.8
	9 10 14 53.92	10 19 5.75	10.48	0.70	10 36 18.6	10 18 4.7	45.1	10.3	10.6
	11 10 23 18.07	10 27 30.85	10.52	0.68	9 59 27.2	9 40 26.6	47.1	10.1	10.4
	13 10 31 44.06	10 35 57.67	10.56	0.67	9 21 3.5	9 1 18.4	48.9	9.9	10.2
	15 10 40 11.66	10 44 25.98	10.59	0.66	8 41 11.6	8 20 43.9	50.7	9.7	10.0
	17 10 48 40.64	10 52 55.62	10.62	0.64	7 59 55.7	7 38 47.5	52.4	9.5	9.8
	19 10 57 10.91	11 1 26.49	10.64	0.63	7 17 19.9	6 55 33.4	54.0	9.4	9.7
	21 11 5 42.36	11 9 58.51	10.67	0.62	6 33 28.7	6 11 6.3	55.6	9.2	9.5
	23 11 14 14.95	11 18 31.67	10.69	0.61	5 48 27.0	5 25 31.2	57.0	9.1	9.4
	25 11 22 48.67	11 27 5.96	10.71	0.60	5 2 19.5	4 38 52.4	58.3	8.9	9.2
	27 11 31 23.55	11 35 41.43	10.74	0.59	4 15 10.7	3 51 15.0	59.5	8.8	9.1
	29 11 39 59.63	11 44 18.15	10.77	0.58	3 27 5.7	3 2 43.6	60.6	8.6	8.9
	31 11 48 37.00	11 52 56.19	10.79	0.57	2 38 9.4	2 13 23.8	61.7	8.5	8.8
Nov. 2	11 57 15.74	12 1 35.68	10.82	0.56	1 48 27.3	1 23 20.5	62.6	8.4	8.7
	4 12 5 56.00	12 10 16.72	10.85	0.55	0 58 4.3	0 32 39.4	63.4	8.3	8.6
	6 12 14 37.85	12 18 59.41	10.89	0.54	0 7 6.3	South.	64.1	8.1	8.4
	8 12 23 21.41	12 27 43.86	10.93	0.53	0 44 21.2	South.	64.6	8.0	8.3
	10 12 32 6.79	12 36 30.20	10.97	0.53	1 36 12.4	1 10 14.2	65.0	7.9	8.2
	12 12 40 54.12	12 45 18.57	11.01	0.52	2 28 21.4	2 15 1.1	65.3	7.8	8.1
	14 12 49 43.58	12 54 9.14	11.05	0.52	3 20 42.0	2 54 30.6	65.5	7.8	8.0
	16 12 58 35.29	13 3 2.05	11.10	0.51	4 13 8.3	3 46 54.8	65.6	7.7	7.9
	18 13 7 29.44	13 11 57.49	11.16	0.51	5 5 34.2	4 39 21.7	65.5	7.6	7.8
	20 13 16 26.23	13 20 55.68	11.21	0.50	5 57 53.9	5 31 45.2	65.3	7.5	7.7
	22 13 25 25.88	13 29 56.83	11.27	0.49	6 50 1.2	6 23 59.5	65.0	7.4	7.6
	24 13 34 28.58	13 39 1.15	11.34	0.49	7 41 49.8	7 15 58.2	64.5	7.3	7.5
	26 13 43 34.57	13 48 8.87	11.41	0.48	8 33 13.8	8 7 35.2	63.9	7.2	7.4
	28 13 52 44.07	13 57 20.20	11.49	0.48	9 24 7.1	9 49 20.2	63.2	7.2	7.4
	30 14 1 57.29	14 6 35.36	11.57	0.48	10 14 23.3	10 39 15.6	62.4	7.1	7.3

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid ^r passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Decl. in Hour of Long.	Semidiameter.	Hor. Par.
	h m s	h m s	+ s	s	South. ° ' "	South. ° ' "	— "	"	"
Dec. 2	14 11 14.44	14 15 54.55	11.65	0.48	11 3 56.2	11 28 24.5	61.4	7.0	7.2
4	14 20 35.71	14 25 17.92	11.74	0.47	11 52 39.7	12 16 40.8	60.3	6.9	7.1
6	14 30 1.22	14 34 45.63	11.83	0.47	12 40 26.9	13 3 57.3	59.1	6.9	7.1
8	14 39 31.16	14 44 17.81	11.92	0.47	13 27 11.4	13 50 8.3	57.7	6.8	7.0
10	14 49 5.60	14 53 54.54	12.02	0.46	14 12 47.0	14 35 6.7	56.2	6.7	6.9
12	14 58 44.65	15 3 35.92	12.11	0.46	14 57 6.8	15 18 46.4	54.6	6.6	6.8
14	15 8 28.37	15 13 22.00	12.21	0.45	15 40 4.6	16 1 0.6	52.8	6.6	6.8
16	15 18 16.81	15 23 12.81	12.31	0.44	16 21 33.6	16 41 42.8	50.9	6.5	6.7
18	15 28 10.00	15 33 8.37	12.41	0.44	17 1 27.6	17 20 47.0	48.9	6.5	6.7
20	15 38 7.93	15 43 8.67	12.50	0.44	17 39 40.3	17 58 6.8	46.7	6.4	6.6
22	15 48 10.60	15 53 13.71	12.60	0.44	18 16 5.8	18 33 36.4	44.4	6.4	6.6
24	15 58 17.98	16 3 23.41	12.70	0.44	18 50 37.9	19 7 9.7	41.9	6.3	6.5
26	16 8 29.99	16 13 37.70	12.80	0.44	19 23 11.2	19 38 41.5	39.4	6.3	6.5
28	16 18 46.52	16 23 56.44	12.89	0.44	19 53 39.9	20 8 5.7	36.8	6.2	6.4
30	16 29 7.44	16 34 19.49	12.98	0.44	20 21 58.4	20 35 17.4	34.0	6.2	6.4
32	16 39 32.57		13.07	0.44	20 48 2.2		31.2	6.1	6.3

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascension on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid ^r passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Decl. in Hour of Long.	Semidiameter.	Hor. Par.
Sept. 1	h m s	h m s	s	s	North.		"	"	"
					° ' "	° ' "			
1	6 52 53.69	6 55 36.77	6.80	0.23	23 25 14.8	23 22 40.9	6.2	3.1	4.8
3	6 58 19.34	7 1 1.39	6.76	0.23	23 19 57.4	23 17 4.5	7.0	3.1	4.8
5	7 3 42.90	7 6 23.87	6.72	0.23	23 14 2.5	23 10 51.2	7.8	3.1	4.8
7	7 9 4.30	7 11 44.16	6.67	0.23	23 7 30.9	23 4 1.8	8.5	3.2	4.9
9	7 14 23.46	7 17 2.17	6.63	0.23	23 0 24.0	22 56 37.7	9.3	3.2	4.9
11	7 19 40.30	7 22 17.81	6.58	0.23	22 52 42.8	22 48 39.7	10.0	3.2	4.9
13	7 24 54.71	7 27 30.96	6.52	0.24	22 44 18.4	22 40 9.2	10.6	3.2	5.0
15	7 30 6.58	7 32 41.56	6.47	0.24	22 35 42.1	22 31 7.8	11.3	3.2	5.0
17	7 35 15.88	7 37 49.54	6.42	0.24	22 26 24.8	22 21 34.9	11.9	3.3	5.1
19	7 40 22.52	7 42 54.80	6.36	0.24	22 16 37.8	22 11 33.3	12.5	3.3	5.1
21	7 45 26.41	7 47 57.32	6.30	0.24	22 6 22.3	22 1 4.4	13.1	3.3	5.1
23	7 50 27.54	7 52 57.06	6.25	0.24	21 55 39.8	21 50 8.8	13.7	3.4	5.2
25	7 55 25.87	7 57 53.96	6.19	0.24	21 44 31.4	21 38 48.0	14.2	3.4	5.2
27	8 0 21.33	8 2 47.99	6.13	0.25	21 32 58.4	21 27 3.1	14.7	3.4	5.3
29	8 5 13.90	8 7 39.08	6.06	0.25	21 21 2.0	21 14 55.5	15.2	3.4	5.3
Oct. 1	8 10 3.53	8 12 27.23	6.00	0.25	21 8 43.6	21 2 26.6	15.6	3.5	5.4
3	8 14 50.17	8 17 12.35	5.94	0.25	20 56 4.6	20 49 37.6	16.0	3.5	5.4
5	8 19 33.78	8 21 54.43	5.88	0.25	20 43 6.0	20 36 29.9	16.4	3.5	5.5
7	8 24 14.28	8 26 33.35	5.81	0.25	20 29 49.7	20 23 5.3	16.8	3.6	5.5
9	8 28 51.60	8 31 9.05	5.74	0.26	20 16 17.0	20 9 25.1	17.1	3.6	5.6
11	8 33 25.67	8 35 41.44	5.67	0.26	20 2 29.7	19 55 30.9	17.4	3.6	5.6
13	8 37 56.37	8 40 10.44	5.60	0.26	19 48 28.9	19 41 24.0	17.7	3.7	5.7
15	8 42 23.64	8 44 35.95	5.53	0.26	19 34 16.2	19 27 5.9	17.9	3.7	5.7
17	8 46 47.37	8 48 57.89	5.46	0.26	19 19 53.4	19 12 38.6	18.1	3.7	5.8
19	8 51 7.52	8 53 16.24	5.39	0.26	19 5 21.8	18 58 3.2	18.3	3.8	5.8
21	8 55 24.03	8 57 30.90	5.31	0.27	18 50 43.1	18 43 21.6	18.4	3.8	5.9
23	8 59 36.84	9 1 41.84	5.23	0.27	18 35 59.0	18 28 35.2	18.5	3.8	5.9
25	9 3 45.89	9 5 48.99	5.15	0.27	18 21 10.7	18 13 45.6	18.5	3.9	6.0
27	9 7 51.13	9 9 52.30	5.07	0.28	18 6 19.9	17 58 54.1	18.6	3.9	6.1
29	9 11 52.49	9 13 51.70	4.99	0.28	17 51 28.2	17 44 2.5	18.6	4.0	6.2
31	9 15 49.90	9 17 47.10	4.91	0.28	17 36 37.2	17 29 12.5	18.5	4.0	6.2
Nov. 2	9 19 43.28	9 21 38.44	4.82	0.29	17 21 48.7	17 14 25.9	18.5	4.1	6.3
4	9 23 32.55	9 25 25.59	4.73	0.29	17 7 4.5	16 59 44.5	18.4	4.1	6.4
6	9 27 17.55	9 29 8.40	4.64	0.29	16 52 26.2	16 45 9.9	18.2	4.2	6.5
8	9 30 58.14	9 32 46.76	4.55	0.30	16 37 55.9	16 30 44.3	18.0	4.2	6.6
10	9 34 34.21	9 36 20.49	4.45	0.30	16 23 35.3	16 16 29.4	17.8	4.3	6.7
12	9 38 5.57	9 39 49.44	4.35	0.30	16 9 26.6	16 2 27.3	17.5	4.3	6.7
14	9 41 32.08	9 43 13.47	4.25	0.31	15 55 31.7	15 48 40.1	17.2	4.4	6.8
16	9 44 53.60	9 46 32.46	4.15	0.31	15 41 52.5	15 35 9.4	16.9	4.5	6.9
18	9 48 10.01	9 49 46.24	4.04	0.31	15 28 31.0	15 21 57.5	16.5	4.5	7.0
20	9 51 21.14	9 52 54.69	3.93	0.32	15 15 29.1	15 9 6.0	16.1	4.6	7.1
22	9 54 26.88	9 55 57.68	3.81	0.32	15 2 48.5	14 56 37.0	15.6	4.7	7.2
24	9 57 27.06	9 58 55.01	3.69	0.32	14 50 31.6	14 44 32.6	15.1	4.7	7.3

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid. passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Decl. in Hour of Long.	Semidiameter.	Hor. Par.
	h m s	h m s	s	s	North. ° ' "	North. ° ' "	"	"	"
Nov. 26	10 0 21.52	10 1 46.56	3.57	0.33	14 38 40.1	14 32 54.5	14.5	4.8	7.4
28	10 3 10.09	10 4 32.09	3.45	0.34	14 27 16.1	14 21 45.1	13.9	4.9	7.5
30	10 5 52.55	10 7 11.42	3.32	0.34	14 16 21.9	14 11 6.7	13.3	5.0	7.7
Dec. 2	10 8 28.69	10 9 44.33	3.19	0.35	14 5 59.7	14 1 1.3	12.6	5.1	7.8
4	10 10 58.30	10 12 10.55	3.05	0.35	13 56 11.7	13 51 31.4	11.9	5.1	7.9
6	10 13 21.03	10 14 29.73	2.90	0.36	13 47 0.5	13 42 39.4	11.1	5.2	8.0
8	10 15 36.62	10 16 41.65	2.75	0.37	13 38 28.4	13 34 27.9	10.2	5.3	8.2
10	10 17 44.77	10 18 45.94	2.59	0.37	13 30 38.1	13 26 59.3	9.3	5.4	8.3
12	10 19 45.14	10 20 42.32	2.42	0.38	13 23 31.9	13 20 16.0	8.4	5.5	8.5
14	10 21 37.46	10 22 30.52	2.25	0.38	13 17 12.1	13 14 20.5	7.4	5.6	8.6
16	10 23 21.45	10 24 10.22	2.07	0.39	13 11 41.2	13 9 14.7	6.4	5.6	8.7
18	10 24 56.81	10 25 41.17	1.89	0.39	13 7 1.1	13 5 0.8	5.3	5.7	8.8
20	10 26 23.25	10 27 3.02	1.70	0.40	13 3 14.0	13 1 41.1	4.2	5.8	9.0
22	10 27 40.45	10 28 15.49	1.51	0.41	13 0 22.3	12 59 17.7	3.0	5.9	9.2
24	10 28 48.12	10 29 18.28	1.31	0.41	12 58 27.5	12 57 52.1	1.8	6.0	9.4
26	10 29 45.95	10 30 11.09	1.10	0.42	12 57 31.7	12 57 26.6	0.5	6.1	9.5
28	10 30 33.64	10 30 53.57	0.88	0.42	12 57 36.9	12 58 2.8	0.8	6.2	9.7
30	10 31 10.83	10 31 25.38	0.66	0.43	12 58 44.5	12 59 42.3	2.1	6.3	9.8
32	10 31 37.18		0.43	0.44	13 0 56.4		3.4	6.5	10.0

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid. passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in Hour of Long.	Semidiameter.
	h m s	h m s	+ "	"	North. ° ' "	North. ° ' "	+ "	"
May 28	0 30 53.52	0 31 31.95	1.61	1.23	2 2 55.0	0 6 49.4	9.8	17.2
30	0 32 10.00	0 32 47.65	1.58	1.24	2 10 41.0	2 14 29.8	9.6	17.2
June 1	0 33 24.91	0 34 1.76	1.54	1.25	2 18 15.8	2 21 58.9	9.4	17.3
3	0 34 38.20	0 35 14.22	1.51	1.25	2 25 39.1	2 29 16.4	9.1	17.4
5	0 35 49.82	0 36 25.00	1.48	1.26	2 32 50.8	2 36 22.2	8.9	17.5
7	0 36 59.75	0 37 34.05	1.44	1.27	2 39 50.6	2 43 15.8	8.6	17.6
9	0 38 7.92	0 38 41.33	1.40	1.28	2 46 37.9	2 49 57.0	8.4	17.7
11	0 39 14.28	0 39 46.77	1.36	1.28	2 53 12.8	2 56 25.4	8.1	17.8
13	0 40 18.79	0 40 50.33	1.32	1.29	2 59 34.8	3 2 40.9	7.8	17.9
15	0 41 21.39	0 41 51.95	1.28	1.30	3 5 43.6	3 8 43.0	7.5	18.0
17	0 42 22.01	0 42 51.56	1.24	1.31	3 11 39.0	3 14 31.5	7.3	18.2
19	0 43 20.60	0 43 49.12	1.20	1.32	3 17 20.6	3 20 6.1	7.0	18.3
21	0 44 17.11	0 44 44.57	1.15	1.32	3 22 48.0	3 25 26.3	6.7	18.4
23	0 45 11.48	0 45 37.85	1.11	1.33	3 28 1.0	3 30 32.1	6.4	18.5
25	0 46 3.67	0 46 28.93	1.06	1.34	3 32 59.4	3 35 23.0	6.1	18.6
27	0 46 53.63	0 47 17.76	1.02	1.35	3 37 42.8	3 39 58.9	5.7	18.7
29	0 47 41.32	0 48 4.30	0.97	1.36	3 42 11.1	3 44 19.5	5.4	18.8
July 1	0 48 26.70	0 48 48.51	0.92	1.36	3 46 24.0	3 48 24.7	5.1	18.9
3	0 49 9.72	0 49 30.34	0.87	1.37	3 50 21.4	3 52 14.1	4.8	19.0
5	0 49 50.34	0 50 9.73	0.82	1.38	3 54 2.9	3 55 47.6	4.5	19.2
7	0 50 28.50	0 50 46.65	0.77	1.39	3 57 28.3	3 59 4.9	4.1	19.3
9	0 51 4.16	0 51 21.04	0.72	1.39	4 0 37.4	4 2 5.8	3.8	19.4
11	0 51 37.28	0 51 52.86	0.66	1.40	4 3 29.9	4 4 49.9	3.4	19.6
13	0 52 7.78	0 52 22.04	0.61	1.41	4 6 5.7	4 7 17.2	3.1	19.7
15	0 52 35.64	0 52 48.55	0.55	1.42	4 8 24.4	4 9 27.3	2.7	19.8
17	0 53 0.78	0 53 12.33	0.50	1.44	4 10 25.9	4 11 20.0	2.3	19.9
19	0 53 23.19	0 53 33.35	0.44	1.45	4 12 9.7	4 12 55.1	2.0	20.0
21	0 53 42.81	0 53 51.57	0.38	1.46	4 13 36.0	4 14 12.4	1.6	20.2
23	0 53 59.62	0 54 6.97	0.32	1.46	4 14 44.4	4 15 11.9	1.2	20.3
25	0 54 13.61	0 54 19.53	0.26	1.47	4 15 35.0	4 15 53.5	0.9	20.4
27	0 54 24.74	0 54 29.22	0.20	1.48	4 16 7.6	4 16 17.1	0.5	20.6
29	0 54 32.99	0 54 36.05	0.14	1.49	4 16 22.2	4 16 22.7	0.1	20.7
31	0 54 38.38	0 54 39.99	0.08	1.50	4 16 18.8	4 16 10.3	0.3	20.9
Aug. 2	0 54 40.87	0 54 41.03	—	1.50	4 15 57.4	4 15 39.9	0.6	21.0
4	0 54 40.46	0 54 39.16	0.04	1.51	4 15 18.0	4 14 51.5	1.0	21.1
6	0 54 37.13	0 54 34.38	0.10	1.52	4 14 20.5	4 13 45.1	1.4	21.2
8	0 54 30.89	0 54 26.67	0.16	1.53	4 13 5.1	4 12 20.6	1.8	21.3
10	0 54 21.71	0 54 16.03	0.22	1.54	4 11 31.6	4 10 38.2	2.1	21.4
12	0 54 9.62	0 54 2.48	0.28	1.55	4 9 40.3	4 8 38.0	2.5	21.5
14	0 53 54.62	0 53 46.04	0.34	1.56	4 7 31.3	4 6 20.3	2.9	21.6
16	0 53 36.74	0 53 26.73	0.40	1.57	4 5 4.8	4 3 45.0	3.2	21.8
18	0 53 16.00	0 53 4.58	0.46	1.58	4 2 20.9	4 0 52.6	3.6	22.0

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

h	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semi- passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Decl. in Hour of Long.	Semidiameter.	Hor. Par.
					<i>North.</i>	<i>North.</i>			
	h m s	h m s	s	s	° ' "	° ' "	"	"	"
Sept. 20	0 52 52.46	0 52 39.66	0.52	1.59	3 59 20.1	3 57 43.5	3.9	22.1	2.0
22	0 52 26.17	0 52 12.02	0.58	1.59	3 56 2.8	3 54 18.0	4.3	22.2	2.1
24	0 51 57.20	0 51 41.72	0.63	1.60	3 52 29.3	3 50 36.6	4.6	22.3	2.1
26	0 51 25.60	0 51 8.84	0.68	1.61	3 48 40.1	3 46 39.8	4.9	22.4	2.1
28	0 50 51.46	0 50 33.46	0.74	1.62	3 44 35.9	3 42 28.3	5.2	22.5	2.1
30	0 50 14.86	0 49 55.66	0.79	1.62	3 40 17.2	3 38 2.6	5.5	22.6	2.1
Oct. 1	0 49 35.88	0 49 15.54	0.84	1.63	3 35 44.5	3 33 23.1	5.8	22.7	2.1
3	0 48 54.63	0 48 33.18	0.88	1.64	3 30 58.5	3 28 30.7	6.1	22.8	2.1
5	0 48 11.18	0 47 48.67	0.93	1.65	3 25 59.7	3 23 25.8	6.4	22.9	2.1
7	0 47 25.66	0 47 2.14	0.97	1.65	3 20 49.0	3 18 9.4	6.6	22.9	2.1
9	0 46 38.14	0 46 13.68	1.01	1.66	3 15 27.0	3 12 42.1	6.8	23.0	2.1
11	0 45 48.78	0 45 23.44	1.05	1.66	3 9 54.7	3 7 4.9	7.0	23.1	2.1
13	0 44 57.69	0 44 31.56	1.08	1.67	3 4 12.9	3 1 18.7	7.2	23.2	2.1
15	0 44 5.05	0 43 38.18	1.11	1.67	2 58 22.5	2 55 24.4	7.4	23.2	2.2
17	0 43 10.98	0 42 43.47	1.14	1.67	2 52 24.6	2 49 23.2	7.5	23.3	2.2
19	0 42 15.68	0 41 47.61	1.16	1.67	2 46 20.3	2 43 16.0	7.6	23.3	2.2
21	0 41 19.30	0 40 50.76	1.18	1.68	2 40 10.6	2 37 4.2	7.7	23.4	2.2
23	0 40 22.02	0 39 53.10	1.20	1.68	2 33 56.8	2 30 48.6	7.8	23.4	2.2
25	0 39 24.01	0 38 54.78	1.21	1.68	2 27 39.8	2 24 30.6	7.9	23.4	2.2
27	0 38 25.44	0 37 56.00	1.22	1.68	2 21 21.0	2 18 11.3	7.9	23.4	2.2
29	0 37 26.48	0 36 56.92	1.23	1.68	2 15 1.5	2 11 51.8	7.9	23.4	2.2
Oct. 1	0 36 27.33	0 35 57.72	1.23	1.68	2 8 42.3	2 5 33.2	7.9	23.4	2.2
3	0 35 28.13	0 34 58.57	1.23	1.68	2 2 24.5	1 59 16.6	7.8	23.4	2.2
5	0 34 29.07	0 33 59.65	1.23	1.68	1 56 9.4	1 53 3.1	7.8	23.4	2.2
7	0 33 30.32	0 33 1.12	1.22	1.68	1 49 57.9	1 46 53.9	7.7	23.4	2.2
9	0 32 32.06	0 32 3.17	1.21	1.68	1 43 51.3	1 40 50.2	7.6	23.4	2.2
11	0 31 34.46	0 31 5.97	1.19	1.67	1 37 50.7	1 34 53.0	7.4	23.3	2.2
13	0 30 37.71	0 30 9.71	1.17	1.67	1 31 57.2	1 29 3.5	7.3	23.3	2.2
15	0 29 41.98	0 29 14.56	1.15	1.67	1 26 12.0	1 23 22.8	7.1	23.2	2.2
17	0 28 47.46	0 28 20.71	1.12	1.67	1 20 36.1	1 17 52.1	6.9	23.2	2.2
19	0 27 54.32	0 27 28.31	1.09	1.66	1 15 10.8	1 12 32.3	6.7	23.1	2.2
21	0 27 1.70	0 26 37.52	1.06	1.66	1 9 56.8	1 7 24.5	6.4	23.0	2.2
23	0 26 12.78	0 25 48.50	1.02	1.66	1 4 55.3	1 2 29.5	6.1	23.0	2.2
25	0 25 24.69	0 25 1.37	0.98	1.65	1 0 7.1	0 57 48.2	5.9	22.9	2.2
27	0 24 38.55	0 24 16.26	0.94	1.64	0 55 32.9	0 53 21.4	5.6	22.8	2.2
29	0 23 54.50	0 23 33.30	0.90	1.63	0 51 13.7	0 49 9.8	5.2	22.7	2.2
Nov. 1	0 23 12.65	0 22 52.58	0.85	1.63	0 47 9.8	0 45 14.0	4.9	22.6	2.2
3	0 22 33.11	0 22 14.23	0.80	1.62	0 43 22.3	0 41 34.7	4.6	22.5	2.2
4	0 21 55.97	0 21 38.33	0.75	1.61	0 39 51.4	0 38 12.5	4.2	22.4	2.2
6	0 21 21.32	0 21 4.97	0.70	1.60	0 36 37.9	0 35 7.8	3.8	22.3	2.2
8	0 20 49.27	0 20 34.23	0.64	1.59	0 33 42.2	0 32 21.1	3.5	22.2	2.2
10	0 20 19.87	0 20 6.21	0.58	1.59	0 31 4.7	0 29 53.0	3.1	22.1	2.2
12	0 19 53.24	0 19 40.98	0.53	1.58	0 28 46.0	0 27 43.7	2.7	22.0	2.2

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day,	Apparent Right Ascension.	Right Ascension on Intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid. passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in Hour of Long.	Semidiameter.	Hor. Par.
	h m s	h m s	s	s	North. ° ' "	North. ° ' "	"	"	"
Nov. 14	0 19 29.44	0 19 18.62	0.47	1.57	0 26 46.3	0 25 53.7	2.3	21.8	2.0
16	0 19 8.53	0 18 59.17	0.41	1.56	0 25 6.1	0 24 23.3	1.9	21.7	2.0
18	0 18 50.55	0 18 41.68	0.34	1.55	0 23 45.5	0 23 12.7	1.5	21.6	2.0
20	0 18 35.56	0 18 29.19	0.28	1.54	0 22 44.9	0 22 22.1	1.1	21.4	2.0
22	0 18 23.57	0 18 18.71	0.22	1.54	0 22 4.3	0 21 51.5	0.6	21.3	2.0
24	0 18 14.61	0 18 11.26	0.16	1.53	0 21 43.7	0 21 40.9	0.2	21.2	2.0
							+		
26	0 18 8.67	0 18 6.84	0.09	1.52	0 21 43.1	0 21 50.3	0.2	21.1	2.0
28	0 18 5.77	0 18 5.45	0.03	1.51	0 22 2.5	0 22 19.6	0.6	21.0	1.9
			+						
30	0 18 5.90	0 18 7.10	0.03	1.50	0 22 41.8	0 23 8.9	1.0	20.8	1.9
Dec. 2	0 18 9.06	0 18 11.77	0.10	1.49	0 23 41.0	0 24 18.0	1.4	20.7	1.9
4	0 18 15.23	0 18 19.45	0.16	1.48	0 24 59.9	0 25 46.7	1.8	20.5	1.9
6	0 18 24.42	0 18 30.14	0.22	1.47	0 26 38.3	0 27 34.9	2.3	20.4	1.9
8	0 18 36.62	0 18 43.83	0.29	1.46	0 28 36.3	0 29 42.5	2.7	20.2	1.9
10	0 18 51.80	0 19 0.50	0.35	1.45	0 30 53.4	0 32 9.1	3.1	20.1	1.9
12	0 19 9.94	0 19 20.12	0.41	1.44	0 33 29.6	0 34 54.8	3.5	20.0	1.9
14	0 19 31.03	0 19 42.67	0.47	1.43	0 36 24.7	0 37 59.2	3.8	19.8	1.8
16	0 19 55.03	0 20 8.12	0.53	1.42	0 39 38.4	0 41 22.2	4.2	19.7	1.8
18	0 20 21.92	0 20 36.42	0.59	1.41	0 43 10.5	0 45 3.3	4.6	19.6	1.8
20	0 20 51.63	0 21 7.53	0.65	1.40	0 47 0.6	0 49 2.3	5.0	19.5	1.8
22	0 21 24.12	0 21 41.39	0.71	1.39	0 51 8.3	0 53 18.7	5.3	19.3	1.8
24	0 21 59.34	0 22 17.95	0.76	1.38	0 55 33.3	0 57 52.1	5.7	19.2	1.8
26	0 22 37.22	0 22 57.15	0.82	1.37	1 0 15.1	1 2 42.3	6.1	19.1	1.8
28	0 23 17.73	0 23 38.96	0.87	1.36	1 5 13.5	1 7 48.7	6.4	18.9	1.8
30	0 24 0.82	0 24 23.31	0.92	1.35	1 10 27.9	1 13 11.1	6.7	18.8	1.7
32	0 24 46.42		0.97	1.35	1 15 58.1		7.0	18.7	1.7

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascension on intermediate Day.	Var. of R.A. in 1 Hour of Long.	Sid. Time of Semid ^r passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in 1 Hour of Long.	Semidiameter.	Hor. Par.
	h m s	h m s	+	s	South. ° ' "	South. ° ' "	— "	"	"
Jan. 22	16 7 43.13	16 8 2.72	0.82	0.55	18 59 35.9	19 0 21.8	1.9	7.2	0.8
24	16 8 22.00	16 8 40.98	0.80	0.55	19 1 6.6	19 1 50.4	1.8	7.2	0.8
26	16 8 59.64	16 9 17.98	0.77	0.53	19 2 33.0	19 3 14.6	1.8	7.2	0.8
28	16 9 36.01	16 9 53.70	0.74	0.55	19 3 55.0	19 4 34.4	1.7	7.2	0.8
30	16 10 11.06	16 10 28.10	0.72	0.55	19 5 12.7	19 5 49.9	1.6	7.3	0.8
Feb. 1	16 10 44.80	16 11 1.15	0.69	0.55	19 6 26.0	19 7 1.0	1.5	7.3	0.8
3	16 11 17.17	16 11 32.84	0.66	0.55	19 7 34.9	19 8 7.7	1.4	7.3	0.8
5	16 11 48.16	16 12 3.13	0.63	0.55	19 8 39.4	19 9 10.0	1.3	7.3	0.8
7	16 12 17.75	16 12 32.00	0.60	0.56	19 9 39.6	19 10 8.0	1.2	7.4	0.8
9	16 12 45.89	16 12 59.42	0.57	0.56	19 10 35.3	19 11 1.6	1.1	7.4	0.8
11	16 13 12.58	16 13 25.36	0.54	0.56	19 11 26.8	19 11 50.8	1.0	7.4	0.8
13	16 13 37.77	16 13 49.80	0.51	0.56	19 12 13.8	19 12 35.7	0.9	7.4	0.9
15	16 14 1.44	16 14 12.70	0.48	0.57	19 12 56.5	19 13 16.2	0.8	7.5	0.9
17	16 14 23.57	16 14 34.04	0.44	0.57	19 13 34.8	19 13 52.3	0.8	7.5	0.9
19	16 14 44.13	16 14 53.81	0.41	0.57	19 14 8.8	19 14 24.1	0.7	7.5	0.9
21	16 15 3.09	16 15 11.97	0.38	0.57	19 14 38.3	19 14 51.4	0.6	7.5	0.9
23	16 15 20.45	16 15 28.52	0.34	0.57	19 15 3.5	19 15 14.4	0.5	7.6	0.9
25	16 15 36.17	16 15 43.42	0.31	0.57	19 15 24.3	19 15 33.1	0.4	7.6	0.9
27	16 15 50.25	16 15 56.67	0.28	0.57	19 15 40.8	19 15 47.4	0.3	7.6	0.9
29	16 16 2.68	16 16 8.27	0.24	0.58	19 15 53.0	19 15 57.5	0.2	7.7	0.9
Mar. 2	16 16 13.44	16 16 18.19	0.21	0.58	19 16 1.0	19 16 3.4	0.1	7.7	0.9
4	16 16 22.52	16 16 26.44	0.17	0.58	19 16 4.7	19 16 5.0	0.0	7.7	0.9
6	16 16 29.94	16 16 33.02	0.14	0.58	19 16 4.2	+	0.1	7.7	0.9
8	16 16 35.69	16 16 37.93	0.10	0.59	19 15 59.6	19 16 2.4	0.1	7.8	0.9
10	16 16 39.76	16 16 41.17	0.07	0.59	19 15 50.8	19 15 55.7	0.2	7.8	0.9
12	16 16 42.15	16 16 42.71	0.03	0.59	19 15 38.1	19 15 44.9	0.3	7.8	0.9
14	16 16 42.86	16 16 42.58	0.00	0.60	19 15 21.1	19 15 30.1	0.4	7.9	0.9
16	16 16 41.88	16 16 40.76	0.04	0.60	19 15 0.2	19 14 48.2	0.5	7.9	0.9
18	16 16 39.22	16 16 37.27	0.07	0.60	19 14 35.3	19 14 21.4	0.6	7.9	0.9
20	16 16 34.90	16 16 32.11	0.11	0.60	19 14 6.5	19 13 50.7	0.6	7.9	0.9
22	16 16 28.92	16 16 25.31	0.14	0.60	19 13 33.9	19 13 16.1	0.7	8.0	0.9
24	16 16 21.29	16 16 16.85	0.18	0.60	19 12 57.4	19 12 37.7	0.8	8.0	0.9
26	16 16 12.01	16 16 6.77	0.21	0.60	19 12 17.1	19 11 55.5	0.9	8.0	0.9
28	16 16 1.13	16 15 55.10	0.24	0.60	19 11 33.1	19 11 9.8	1.0	8.0	0.9
30	16 15 48.68	16 15 41.88	0.28	0.61	19 10 45.6	19 10 20.6	1.0	8.1	0.9
Apr. 1	16 15 34.69	16 15 27.12	0.31	0.61	19 9 54.7	19 9 27.9	1.1	8.1	0.9
3	16 15 19.18	16 15 10.87	0.34	0.61	19 9 0.3	19 8 31.8	1.2	8.1	0.9
5	16 15 2.19	16 14 53.14	0.37	0.61	19 8 2.5	19 7 32.4	1.2	8.1	0.9
7	16 14 43.74	16 14 33.99	0.40	0.61	19 7 1.5	19 6 29.8	1.3	8.2	0.9
9	16 14 23.88	16 14 13.43	0.43	0.61	19 5 57.3	19 5 24.0	1.4	8.2	0.9
11	16 14 2.64	16 13 51.51	0.46	0.61	19 4 50.0	19 4 15.3	1.4	8.2	0.9

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascension on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid. passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in Hour of Long.	Semidiameter.	Hor. Par.
<div> <div> <div>South.</div> <div>° ' "</div> </div> <div> <div>South.</div> <div>° ' "</div> </div> <div> <div>+</div> <div>"</div> </div> </div>									
Apr. 13	h m s	h m s	"	"	19 3 39.9	19 3 3.8	1.5	8.2	0.9
15	16 13 16.16	16 13 28.27	0.48	0.62	19 2 26.9	19 1 49.4	1.6	8.2	0.9
17	16 12 51.02	16 12 37.99	0.54	0.62	19 1 11.2	19 0 32.4	1.6	8.3	0.9
19	16 12 24.67	16 12 11.06	0.56	0.62	18 59 53.0	18 59 12.9	1.7	8.3	0.9
21	16 11 57.18	16 11 43.01	0.58	0.62	18 58 32.2	18 57 50.9	1.7	8.3	0.9
23	16 11 28.58	16 11 13.89	0.61	0.62	18 57 9.1	18 56 26.7	1.8	8.3	0.9
25	16 10 58.94	16 10 43.76	0.63	0.62	18 55 43.7	18 55 0.3	1.8	8.3	0.9
27	16 10 28.35	16 10 12.70	0.65	0.63	18 54 16.3	18 53 31.9	1.8	8.3	0.9
29	16 9 56.84	16 9 40.77	0.67	0.63	18 52 47.0	18 52 1.7	1.9	8.3	0.9
May 1	16 9 24.51	16 9 8.05	0.68	0.63	18 51 16.0	18 50 30.0	1.9	8.3	0.9
3	16 8 51.41	16 8 34.59	0.70	0.63	18 49 43.6	18 48 56.8	1.9	8.3	1.0
5	16 8 17.61	16 8 0.46	0.71	0.63	18 48 9.8	18 47 22.4	2.0	8.3	1.0
7	16 7 43.17	16 7 25.73	0.72	0.63	18 46 34.8	18 45 46.9	2.0	8.3	1.0
9	16 7 8.16	16 6 50.46	0.73	0.63	18 44 58.8	18 44 10.5	2.0	8.3	1.0
11	16 6 32.62	16 6 14.71	0.74	0.63	18 43 22.0	18 42 33.3	2.0	8.3	1.0
13	16 5 56.68	16 5 38.57	0.75	0.63	18 41 44.5	18 40 55.6	2.0	8.3	1.0
15	16 5 20.38	16 5 2.11	0.76	0.63	18 40 6.5	18 39 17.4	2.0	8.3	1.0
17	16 4 43.78	16 4 25.39	0.77	0.63	18 38 28.2	18 37 39.1	2.0	8.3	1.0
19	16 4 6.96	16 3 48.50	0.77	0.63	18 36 49.9	18 36 0.8	2.0	8.3	1.0
21	16 3 30.02	16 3 11.52	0.77	0.63	18 35 11.8	18 34 22.8	2.0	8.3	1.0
23	16 2 53.02	16 2 34.52	0.77	0.63	18 33 33.9	18 32 45.2	2.0	8.3	1.0
25	16 2 16.04	16 1 57.59	0.77	0.63	18 31 56.7	18 31 8.4	2.0	8.3	1.0
27	16 1 39.17	16 1 20.80	0.77	0.63	18 30 20.3	18 29 32.5	2.0	8.3	1.0
29	16 1 2.48	16 0 44.23	0.76	0.63	18 28 44.9	18 27 57.7	2.0	8.3	1.0
31	16 0 26.05	16 0 7.96	0.76	0.63	18 27 10.8	18 26 24.2	1.9	8.3	1.0
June 2	15 59 49.95	15 59 32.04	0.75	0.63	18 25 38.1	18 24 52.3	1.9	8.3	1.0
4	15 59 14.24	15 58 56.55	0.74	0.63	18 24 7.0	18 23 22.1	1.9	8.3	1.0
6	15 58 38.99	15 58 21.55	0.73	0.63	18 22 37.8	18 21 53.9	1.8	8.3	1.0
8	15 58 4.26	15 57 47.11	0.72	0.63	18 21 10.6	18 20 27.8	1.8	8.3	1.0
10	15 57 30.12	15 57 13.29	0.70	0.63	18 19 45.6	18 19 4.0	1.7	8.3	1.0
12	15 56 56.63	15 56 40.15	0.69	0.63	18 18 23.0	18 17 42.7	1.7	8.3	1.0
14	15 56 23.86	15 56 7.77	0.67	0.63	18 17 3.1	18 16 24.1	1.6	8.3	0.9
16	15 55 51.88	15 55 36.21	0.66	0.63	18 15 45.9	18 15 8.5	1.6	8.3	0.9
18	15 55 20.75	15 55 5.53	0.64	0.62	18 14 31.8	18 13 55.9	1.5	8.3	0.9
20	15 54 50.54	15 54 35.79	0.62	0.62	18 13 20.8	18 12 46.6	1.4	8.3	0.9
22	15 54 21.29	15 54 7.06	0.60	0.62	18 12 13.3	18 11 40.9	1.4	8.3	0.9
24	15 53 53.08	15 53 39.38	0.58	0.62	18 11 9.4	18 10 38.8	1.3	8.3	0.9
26	15 53 25.96	15 53 12.82	0.55	0.62	18 10 9.1	18 9 40.5	1.2	8.3	0.9
28	15 52 59.97	15 52 47.41	0.53	0.62	18 9 12.8	18 8 46.1	1.1	8.3	0.9
30	15 52 35.15	15 52 23.19	0.50	0.62	18 8 20.5	18 7 55.9	1.0	8.2	0.9
July 2	15 52 11.54	15 52 0.20	0.48	0.62	18 7 32.3	18 7 9.8	1.0	8.2	0.9
4	15 51 49.19	15 51 38.49	0.45	0.62	18 6 48.4	18 6 28.1	0.9	8.2	0.9
6	15 51 28.13	15 51 18.09	0.43	0.62	18 6 8.8	18 5 50.7	0.8	8.2	0.9

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid ^r passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in Hour of Long.	Semidiameter.	Hor. Par.
			—		South.	South.	+		
	<i>h m s</i>	<i>h m s</i>	<i>s</i>	<i>s</i>	<i>° ′ ″</i>	<i>° ′ ″</i>	<i>″</i>	<i>″</i>	<i>″</i>
July 8	15 51 8.39	15 50 59.03	0.40	0.62	18 5 33.7	18 5 17.9	0.7	8.2	0.9
10	15 50 50.02	15 50 41.35	0.37	0.61	18 5 3.2	18 4 49.6	0.6	8.1	0.9
12	15 50 33.03	15 50 25.06	0.34	0.61	18 4 37.3	18 4 26.1	0.5	8.1	0.9
14	15 50 17.46	15 50 10.22	0.31	0.61	18 4 16.1	18 4 7.3	0.4	8.1	0.9
16	15 50 3.34	15 49 56.84	0.28	0.61	18 3 59.8	18 3 53.5	0.3	8.1	0.9
18	15 49 50.71	15 49 44.96	0.25	0.61	18 3 48.4	18 3 44.6	0.2	8.0	0.9
20	15 49 39.59	15 49 34.60	0.22	0.61	18 3 42.0	18 3 40.7	0.1	8.0	0.9
22	15 49 29.99	15 49 25.77	0.18	0.61	18 3 40.6	18 3 41.8	0.0	8.0	0.9
24	15 49 21.94	15 49 18.50	0.15	0.61	18 3 44.3	18 3 48.1	0.1	8.0	0.9
26	15 49 15.44	15 49 12.78	0.12	0.60	18 3 53.1	18 3 59.4	0.2	7.9	0.9
28	15 49 10.52	15 49 8.64	0.09	0.60	18 4 7.0	18 4 15.8	0.3	7.9	0.9
30	15 49 7.16	15 49 6.07	0.05	0.60	18 4 25.9	18 4 37.3	0.4	7.9	0.9
Aug. 1	15 49 5.38	15 49 5.08	0.02	0.59	18 4 49.9	18 5 3.8	0.6	7.8	0.9
			+						
3	15 49 5.18	15 49 5.67	0.01	0.59	18 5 18.9	18 5 35.4	0.7	7.8	0.9
5	15 49 6.56	15 49 7.84	0.05	0.59	18 5 53.0	18 6 12.0	0.8	7.8	0.9
7	15 49 9.52	15 49 11.59	0.08	0.59	18 6 32.2	18 6 53.6	0.9	7.8	0.9
9	15 49 14.06	15 49 16.93	0.11	0.58	18 7 16.2	18 7 40.1	1.0	7.7	0.9
11	15 49 20.20	15 49 23.86	0.14	0.58	18 8 5.3	18 8 31.6	1.1	7.7	0.9
13	15 49 27.91	15 49 32.37	0.18	0.58	18 8 59.2	18 9 28.0	1.2	7.7	0.9
15	15 49 37.22	15 49 42.46	0.21	0.58	18 9 57.9	18 10 29.1	1.3	7.6	0.9
17	15 49 48.10	15 49 54.13	0.24	0.58	18 11 1.5	18 11 35.0	1.4	7.6	0.9
19	15 50 0.56	15 50 7.37	0.28	0.58	18 12 9.7	18 12 45.6	1.5	7.6	0.9
21	15 50 14.58	15 50 22.17	0.31	0.58	18 13 22.6	18 14 0.8	1.6	7.6	0.9
23	15 50 30.15	15 50 38.50	0.34	0.57	18 14 40.1	18 15 20.5	1.7	7.5	0.9
25	15 50 47.24	15 50 56.36	0.37	0.57	18 16 2.0	18 16 44.6	1.8	7.5	0.9
27	15 51 5.86	15 51 15.73	0.40	0.57	18 17 28.3	18 18 13.0	1.8	7.5	0.9
29	15 51 25.97	15 51 36.58	0.43	0.57	18 18 58.8	18 19 45.6	1.9	7.5	0.9
31	15 51 47.55	15 51 58.89	0.46	0.56	18 20 33.5	18 21 22.3	2.0	7.4	0.8
Sept. 2	15 52 10.60	15 52 22.66	0.49	0.56	18 22 12.2	18 23 3.0	2.1	7.4	0.8
4	15 52 35.08	15 52 47.85	0.52	0.56	18 23 54.7	18 24 47.4	2.2	7.4	0.8
6	15 53 0.98	15 53 14.46	0.55	0.56	18 25 41.0	18 26 35.5	2.3	7.4	0.8
8	15 53 28.29	15 53 42.47	0.58	0.55	18 27 30.9	18 28 27.3	2.3	7.3	0.8
10	15 53 56.99	15 54 11.85	0.61	0.55	18 29 24.5	18 30 22.6	2.4	7.3	0.8
12	15 54 27.05	15 54 42.59	0.64	0.55	18 31 21.5	18 32 21.2	2.5	7.3	0.8
14	15 54 58.46	15 55 14.67	0.67	0.55	18 33 21.7	18 34 23.1	2.5	7.3	0.8
16	15 55 31.20	15 55 48.05	0.70	0.55	18 35 25.2	18 36 28.1	2.6	7.2	0.8
18	15 56 5.22	15 56 22.71	0.72	0.55	18 37 31.7	18 38 36.0	2.7	7.2	0.8

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R.A. in 1 Hour of Long.	Sid. Time of Semid ^r passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in 1 Hour of Long.	Semidiameter.	Hor. Par.
	<i>h m s</i>	<i>h m s</i>	<i>s</i>	<i>s</i>	<i>North.</i> <i>° ' "</i>	<i>North.</i> <i>° ' "</i>	<i>+</i> <i>"</i>	<i>"</i>	<i>"</i>
Jan. 1	6 47 34.10	6 47 22.84	0.47	0.15	23 23 2.0	23 23 15.3	0.6	2.1	0.5
3	6 47 11.59	6 47 0.35	0.47	0.15	23 23 28.5	23 23 41.6	0.6	2.1	0.5
5	6 46 49.13	6 46 37.92	0.47	0.15	23 23 54.7	23 24 7.6	0.5	2.1	0.5
7	6 46 26.74	6 46 15.59	0.47	0.15	23 24 20.4	23 24 33.2	0.5	2.1	0.5
9	6 46 4.48	6 45 53.40	0.46	0.15	23 24 45.8	23 24 58.3	0.5	2.1	0.5
11	6 45 42.37	6 45 31.38	0.46	0.15	23 25 10.8	23 25 23.0	0.5	2.1	0.5
13	6 45 20.45	6 45 9.57	0.45	0.15	23 25 35.2	23 25 47.2	0.5	2.1	0.5
15	6 44 58.76	6 44 48.02	0.45	0.15	23 25 59.0	23 26 10.8	0.5	2.1	0.5
17	6 44 37.35	6 44 26.76	0.44	0.15	23 26 22.3	23 26 33.7	0.5	2.1	0.5
19	6 44 16.25	6 44 5.83	0.44	0.15	23 26 45.0	23 26 56.1	0.5	2.1	0.5
21	6 43 55.50	6 43 45.27	0.43	0.15	23 27 7.1	23 27 17.8	0.5	2.1	0.5
23	6 43 35.14	6 43 25.11	0.42	0.15	23 27 28.5	23 27 38.9	0.4	2.1	0.5
25	6 43 15.20	6 43 5.40	0.41	0.15	23 27 49.2	23 27 59.2	0.4	2.1	0.5
27	6 42 55.73	6 42 46.18	0.40	0.15	23 28 9.1	23 28 18.8	0.4	2.1	0.5
29	6 42 36.76	6 42 27.46	0.39	0.15	23 28 28.3	23 28 37.6	0.4	2.1	0.5
31	6 42 18.31	6 42 9.30	0.38	0.15	23 28 46.7	23 28 55.7	0.4	2.1	0.5
Feb. 2	6 42 0.44	6 41 51.72	0.37	0.15	23 29 4.4	23 29 13.0	0.4	2.1	0.5
4	6 41 43.16	6 41 34.76	0.35	0.15	23 29 21.3	23 29 29.5	0.3	2.1	0.5
6	6 41 26.51	6 41 18.42	0.34	0.15	23 29 37.4	23 29 45.1	0.3	2.1	0.5
8	6 41 10.51	6 41 2.76	0.33	0.15	23 29 52.6	23 29 59.9	0.3	2.1	0.5
10	6 40 55.18	6 40 47.78	0.31	0.15	23 30 7.0	23 30 13.9	0.3	2.1	0.5
12	6 40 40.56	6 40 33.51	0.30	0.15	23 30 20.6	23 30 27.1	0.3	2.1	0.5
14	6 40 26.66	6 40 19.99	0.28	0.15	23 30 33.4	23 30 39.4	0.3	2.1	0.5
16	6 40 13.50	6 40 7.21	0.27	0.15	23 30 45.3	23 30 50.9	0.2	2.1	0.5
18	6 40 1.11	6 39 55.22	0.25	0.15	23 30 56.3	23 31 1.5	0.2	2.1	0.5
20	6 39 49.52	6 39 44.03	0.23	0.15	23 31 6.5	23 31 11.2	0.2	2.0	0.5
22	6 39 38.75	6 39 33.68	0.22	0.15	23 31 15.7	23 31 20.0	0.2	2.0	0.5
24	6 39 28.81	6 39 24.16	0.20	0.15	23 31 24.1	23 31 28.0	0.2	2.0	0.5
26	6 39 19.72	6 39 15.51	0.18	0.15	23 31 31.6	23 31 35.0	0.1	2.0	0.5
28	6 39 11.51	6 39 7.73	0.16	0.15	23 31 38.2	23 31 41.2	0.1	2.0	0.5
Mar. 1	6 39 4.18	6 39 0.84	0.14	0.15	23 31 44.0	23 31 46.5	0.1	2.0	0.5
3	6 38 57.73	6 38 54.85	0.12	0.15	23 31 48.7	23 31 50.8	0.1	2.0	0.5
5	6 38 52.19	6 38 49.76	0.11	0.15	23 31 52.7	23 31 54.3	0.1	2.0	0.5
7	6 38 47.55	6 38 45.57	0.09	0.15	23 31 55.7	23 31 56.9	0.1	2.0	0.5
9	6 38 43.82	6 38 42.30	0.07	0.15	23 31 57.9	23 31 58.7	0.0	2.0	0.5
11	6 38 41.01	6 38 39.96	0.05	0.15	23 31 59.3	23 31 59.6	0.0	2.0	0.5
13	6 38 39.14	6 38 38.54	0.03	0.15	23 31 59.8	23 31 59.7	0.0	2.0	0.5
15	6 38 38.18	6 38 38.05	0.01	0.15	23 31 59.4	23 31 58.8	0.0	2.0	0.5
17	6 38 38.16	6 38 38.50	0.01	0.15	23 31 58.0	23 31 57.0	0.0	2.0	0.5
19	6 38 39.08	6 38 39.89	0.03	0.15	23 31 55.8	23 31 54.4	0.1	2.0	0.5
21	6 38 40.93	6 38 42.21	0.05	0.15	23 31 52.7	23 31 50.9	0.1	2.0	0.5
23	6 38 43.72	6 38 45.46	0.07	0.15	23 31 48.8	23 31 46.5	0.1	2.0	0.5

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascen. on intermediate Day.	Var. of R.A. in Hour of Long.	Sid. Time of Semid' passing Merid.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in Hour of Long.	Semidiameter.	Hor. Par.
					North.	North.	—		
	h m s	h m s	+	° ' "	° ' "	° ' "	"	"	"
Mar. 25	6 38 47.44	6 38 49.66	0.09	0.15	23 31 43.9	23 31 41.2	0.1	2.0	0.5
27	6 38 52.10	6 38 54.78	0.11	0.15	23 31 38.2	23 31 35.0	0.1	2.0	0.5
29	6 38 57.69	6 39 0.82	0.13	0.15	23 31 31.6	23 31 28.0	0.1	2.0	0.5
31	6 39 4.19	6 39 7.78	0.15	0.15	23 31 24.1	23 31 20.1	0.2	2.0	0.5
Apr. 2	6 39 11.60	6 39 15.65	0.16	0.15	23 31 15.8	23 31 11.4	0.2	2.0	0.5
4	6 39 19.92	6 39 24.41	0.18	0.15	23 31 6.7	23 31 1.9	0.2	2.0	0.5
6	6 39 29.12	6 39 34.06	0.20	0.15	23 30 56.8	23 30 51.5	0.2	2.0	0.5
8	6 39 39.21	6 39 44.58	0.22	0.15	23 30 45.9	23 30 40.2	0.2	2.0	0.5
10	6 39 50.16	6 39 55.77	0.24	0.15	23 30 34.2	23 30 28.0	0.3	2.0	0.5
12	6 40 1.98	6 40 8.21	0.26	0.15	23 30 21.7	23 30 15.1	0.3	2.0	0.5
14	6 40 14.65	6 40 21.29	0.27	0.15	23 30 8.3	23 30 1.2	0.3	2.0	0.5
16	6 40 28.15	6 40 35.22	0.29	0.15	23 29 54.0	23 29 46.6	0.3	2.0	0.4
18	6 40 42.49	6 40 49.96	0.31	0.15	23 29 38.9	23 29 31.0	0.3	2.0	0.4
20	6 40 57.64	6 41 5.52	0.32	0.14	23 29 22.9	23 29 14.5	0.3	1.9	0.4
22	6 41 13.59	6 41 21.87	0.34	0.14	23 29 6.0	23 28 57.3	0.4	1.9	0.4
24	6 41 30.33	6 41 38.99	0.36	0.14	23 28 48.3	23 28 39.1	0.4	1.9	0.4
26	6 41 47.84	6 41 56.88	0.37	0.14	23 28 29.8	23 28 20.2	0.4	1.9	0.4
28	6 42 6.10	6 42 15.50	0.39	0.14	23 28 10.5	23 28 0.5	0.4	1.9	0.4
30	6 42 25.08	6 42 34.84	0.40	0.14	23 27 50.4	23 27 40.1	0.4	1.9	0.4
May 2	6 42 44.77	6 42 54.88	0.42	0.14	23 27 29.5	23 27 18.7	0.4	1.9	0.4
			—				+		
Nov. 23	7 14 7.44	7 14 0.47	0.29	0.15	22 47 12.0	22 47 25.8	0.6	2.1	0.5
25	7 13 53.31	7 13 45.99	0.30	0.15	22 47 39.9	22 47 54.2	0.6	2.1	0.5
27	7 13 38.48	7 13 30.81	0.32	0.15	22 48 8.9	22 48 23.8	0.6	2.1	0.5
29	7 13 22.96	7 13 14.95	0.33	0.15	22 48 38.9	22 48 54.3	0.6	2.1	0.5
Dec. 1	7 13 6.78	7 12 58.45	0.34	0.15	22 49 10.0	22 49 25.9	0.7	2.1	0.5
3	7 12 49.96	7 12 41.32	0.36	0.15	22 49 42.0	22 49 58.3	0.7	2.1	0.5
5	7 12 32.53	7 12 23.60	0.37	0.15	22 50 14.8	22 50 31.5	0.7	2.1	0.5
7	7 12 14.53	7 12 5.32	0.38	0.15	22 50 48.4	22 51 5.5	0.7	2.1	0.5
9	7 11 55.97	7 11 46.50	0.39	0.15	22 51 22.7	22 51 40.2	0.7	2.1	0.5
11	7 11 36.90	7 11 27.17	0.40	0.15	22 51 57.8	22 52 15.5	0.7	2.1	0.5
13	7 11 17.33	7 11 7.38	0.41	0.15	22 52 33.4	22 52 51.4	0.7	2.1	0.5
15	7 10 57.32	7 10 47.16	0.42	0.15	22 53 9.5	22 53 27.7	0.8	2.1	0.5
17	7 10 36.90	7 10 26.55	0.43	0.15	22 53 46.0	22 54 4.4	0.8	2.1	0.5
19	7 10 16.10	7 10 5.57	0.44	0.15	22 54 22.9	22 54 41.4	0.8	2.1	0.5
21	7 9 54.97	7 9 44.29	0.44	0.15	22 55 0.0	22 55 18.7	0.8	2.1	0.5
23	7 9 33.55	7 9 22.74	0.45	0.15	22 55 37.4	22 55 56.1	0.8	2.1	0.5
25	7 9 11.87	7 9 0.95	0.45	0.15	22 56 14.9	22 56 33.7	0.8	2.1	0.5
27	7 8 49.98	7 8 38.96	0.46	0.15	22 56 52.5	22 57 11.3	0.8	2.1	0.5
29	7 8 27.90	7 8 16.81	0.46	0.15	22 57 30.1	22 57 48.9	0.8	2.1	0.5
31	7 8 5.68	7 7 54.53	0.46	0.15	22 58 7.7	22 58 26.4	0.8	2.1	0.5

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascension on intermediate Day.	Var. of R.A. in 1 Hour of Long.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in 1 Hour of Long.	Hor. Par.
	<i>h m s</i>	<i>h m s</i>	<i>+</i>	<i>North.</i>	<i>North.</i>	<i>+</i>	
Jan. 1	0 47 45 ^{.82}	0 47 46 ^{.92}	0 ^{.04}	3 23 32 ^{.0}	3 23 32 ^{.4}	0 ^{.4}	0 ^{.3}
3	0 47 48 ^{.16}	0 47 49 ^{.54}	0 ^{.03}	3 23 43 ^{.6}	3 23 55 ^{.6}	0 ^{.5}	0 ^{.3}
5	0 47 51 ^{.03}	0 47 52 ^{.66}	0 ^{.07}	3 24 8 ^{.3}	3 24 21 ^{.9}	0 ^{.5}	0 ^{.3}
7	0 47 54 ^{.40}	0 47 56 ^{.28}	0 ^{.08}	3 24 36 ^{.2}	3 24 51 ^{.4}	0 ^{.6}	0 ^{.3}
9	0 47 58 ^{.27}	0 48 0 ^{.40}	0 ^{.09}	3 25 7 ^{.3}	3 25 24 ^{.1}	0 ^{.7}	0 ^{.3}
11	0 48 2 ^{.64}	0 48 5 ^{.02}	0 ^{.10}	3 25 41 ^{.6}	3 25 59 ^{.8}	0 ^{.7}	0 ^{.3}
13	0 48 7 ^{.51}	0 48 10 ^{.13}	0 ^{.11}	3 26 18 ^{.8}	3 26 38 ^{.6}	0 ^{.8}	0 ^{.3}
15	0 48 12 ^{.87}	0 48 15 ^{.74}	0 ^{.12}	3 26 59 ^{.2}	3 27 20 ^{.5}	0 ^{.9}	0 ^{.3}
17	0 48 18 ^{.72}	0 48 21 ^{.84}	0 ^{.13}	3 27 42 ^{.5}	3 28 5 ^{.4}	0 ^{.9}	0 ^{.3}
19	0 48 25 ^{.07}	0 48 28 ^{.43}	0 ^{.14}	3 28 29 ^{.0}	3 28 53 ^{.4}	1 ^{.0}	0 ^{.3}
21	0 48 31 ^{.90}	0 48 35 ^{.49}	0 ^{.15}	3 29 18 ^{.5}	3 29 44 ^{.3}	1 ^{.0}	0 ^{.3}
23	0 48 39 ^{.20}	0 48 43 ^{.02}	0 ^{.16}	3 30 10 ^{.9}	3 30 38 ^{.2}	1 ^{.1}	0 ^{.3}
25	0 48 46 ^{.96}	0 48 51 ^{.01}	0 ^{.17}	3 31 6 ^{.1}	3 31 34 ^{.8}	1 ^{.1}	0 ^{.3}
27	0 48 55 ^{.18}	0 48 59 ^{.46}	0 ^{.18}	3 32 4 ^{.0}	3 32 34 ^{.0}	1 ^{.2}	0 ^{.3}
29	0 49 3 ^{.86}	0 49 8 ^{.37}	0 ^{.19}	3 33 4 ^{.5}	3 33 35 ^{.8}	1 ^{.2}	0 ^{.3}
31	0 49 12 ^{.98}	0 49 17 ^{.71}	0 ^{.19}	3 34 7 ^{.7}	3 34 40 ^{.3}	1 ^{.3}	0 ^{.3}
Feb. 2	0 49 22 ^{.53}	0 49 27 ^{.46}	0 ^{.20}	3 35 13 ^{.5}	3 35 47 ^{.4}	1 ^{.3}	0 ^{.3}
Aug. 21	1 5 27 ^{.69}	1 5 24 ^{.05}	0 ^{.15}	5 10 35 ^{.6}	5 10 10 ^{.0}	1 ^{.0}	0 ^{.3}
23	1 5 20 ^{.32}	1 5 16 ^{.50}	0 ^{.16}	5 9 44 ^{.0}	5 9 17 ^{.4}	1 ^{.0}	0 ^{.3}
25	1 5 12 ^{.58}	1 5 8 ^{.57}	0 ^{.17}	5 8 50 ^{.3}	5 8 22 ^{.6}	1 ^{.1}	0 ^{.3}
27	1 5 4 ^{.46}	1 5 0 ^{.28}	0 ^{.17}	5 7 54 ^{.5}	5 7 25 ^{.8}	1 ^{.2}	0 ^{.3}
29	1 4 56 ^{.00}	1 4 51 ^{.64}	0 ^{.18}	5 6 56 ^{.5}	5 6 26 ^{.9}	1 ^{.2}	0 ^{.3}
31	1 4 47 ^{.19}	1 4 42 ^{.66}	0 ^{.18}	5 5 56 ^{.8}	5 5 26 ^{.3}	1 ^{.3}	0 ^{.3}
Sept. 2	1 4 38 ^{.05}	1 4 33 ^{.37}	0 ^{.19}	5 4 55 ^{.3}	5 4 23 ^{.9}	1 ^{.3}	0 ^{.3}
4	1 4 28 ^{.60}	1 4 23 ^{.76}	0 ^{.20}	5 3 52 ^{.0}	5 3 19 ^{.7}	1 ^{.3}	0 ^{.3}
6	1 4 18 ^{.84}	1 4 13 ^{.85}	0 ^{.21}	5 2 46 ^{.9}	5 2 13 ^{.8}	1 ^{.3}	0 ^{.3}
8	1 4 8 ^{.78}	1 4 3 ^{.66}	0 ^{.22}	5 1 40 ^{.3}	5 1 6 ^{.4}	1 ^{.4}	0 ^{.3}
10	1 3 58 ^{.46}	1 3 53 ^{.21}	0 ^{.22}	5 0 32 ^{.2}	4 59 57 ^{.6}	1 ^{.4}	0 ^{.3}
12	1 3 47 ^{.89}	1 3 42 ^{.51}	0 ^{.23}	4 59 22 ^{.7}	4 58 47 ^{.4}	1 ^{.5}	0 ^{.3}
14	1 3 37 ^{.06}	1 3 31 ^{.56}	0 ^{.23}	4 58 11 ^{.8}	4 57 36 ^{.0}	1 ^{.5}	0 ^{.3}
16	1 3 26 ^{.00}	1 3 20 ^{.39}	0 ^{.24}	4 56 59 ^{.8}	4 56 23 ^{.4}	1 ^{.5}	0 ^{.3}
18	1 3 14 ^{.72}	1 3 9 ^{.02}	0 ^{.24}	4 55 46 ^{.7}	4 55 9 ^{.8}	1 ^{.5}	0 ^{.3}
20	1 3 3 ^{.26}	1 2 57 ^{.47}	0 ^{.24}	4 54 32 ^{.6}	4 53 55 ^{.2}	1 ^{.6}	0 ^{.3}
22	1 2 51 ^{.63}	1 2 45 ^{.75}	0 ^{.24}	4 53 17 ^{.6}	4 52 39 ^{.8}	1 ^{.6}	0 ^{.3}
24	1 2 39 ^{.84}	1 2 33 ^{.90}	0 ^{.25}	4 52 1 ^{.9}	4 51 23 ^{.9}	1 ^{.6}	0 ^{.3}
26	1 2 27 ^{.92}	1 2 21 ^{.92}	0 ^{.25}	4 50 45 ^{.7}	4 50 7 ^{.3}	1 ^{.6}	0 ^{.3}
28	1 2 15 ^{.88}	1 2 9 ^{.83}	0 ^{.25}	4 49 28 ^{.8}	4 48 50 ^{.4}	1 ^{.6}	0 ^{.3}
30	1 2 3 ^{.74}	1 1 57 ^{.64}	0 ^{.25}	4 48 11 ^{.7}	4 47 33 ^{.0}	1 ^{.6}	0 ^{.3}
Oct. 2	1 1 51 ^{.51}	1 1 45 ^{.37}	0 ^{.25}	4 46 54 ^{.2}	4 46 15 ^{.5}	1 ^{.6}	0 ^{.3}
4	1 1 39 ^{.21}	1 1 33 ^{.05}	0 ^{.26}	4 45 36 ^{.7}	4 44 57 ^{.9}	1 ^{.6}	0 ^{.3}
6	1 1 26 ^{.87}	1 1 20 ^{.70}	0 ^{.26}	4 44 19 ^{.1}	4 43 40 ^{.3}	1 ^{.6}	0 ^{.3}
8	1 1 14 ^{.51}	1 1 8 ^{.32}	0 ^{.26}	4 43 1 ^{.6}	4 42 22 ^{.9}	1 ^{.6}	0 ^{.3}

AT TRANSIT OVER THE MERIDIAN OF GREENWICH.

Month and Day.	Apparent Right Ascension.	Right Ascension on intermediate Day.	Var. of R.A. in 1 Hour of Long.	Apparent Declination.	Declination on intermediate Day.	Var. of Declin. in 1 Hour of Long.	Hor. Par.
	h m s	h m s	s	North. ° ' "	North. ° ' "	"	"
Oct. 10	1 1 2.13	1 0 55.95	0.26	4 41 44.3	4 41 5.7	1.6	0.3
12	1 0 49.77	1 0 43.60	0.26	4 40 27.2	4 39 48.9	1.6	0.3
14	1 0 37.43	1 0 31.29	0.26	4 39 10.7	4 38 32.7	1.6	0.3
16	1 0 25.16	1 0 19.05	0.25	4 37 54.7	4 37 17.0	1.6	0.3
18	1 0 12.96	1 0 6.89	0.25	4 36 39.5	4 36 2.2	1.5	0.3
20	1 0 0.85	0 59 54.83	0.25	4 35 25.0	4 34 48.1	1.5	0.3
22	0 59 48.84	0 59 42.89	0.25	4 34 11.5	4 33 35.1	1.5	0.3
24	0 59 36.97	0 59 31.10	0.25	4 32 59.0	4 32 23.2	1.5	0.3
26	0 59 25.26	0 59 19.47	0.24	4 31 47.7	4 31 12.6	1.5	0.3
28	0 59 13.72	0 59 8.01	0.24	4 30 37.7	4 30 3.3	1.4	0.3
30	0 59 2.35	0 58 56.76	0.24	4 29 29.2	4 28 55.5	1.4	0.3
Nov. 1	0 58 51.20	0 58 45.71	0.23	4 28 22.2	4 27 49.3	1.4	0.3
3	0 58 40.28	0 58 34.91	0.23	4 27 16.8	4 26 44.8	1.4	0.3
5	0 58 29.59	0 58 24.34	0.22	4 26 13.2	4 25 42.0	1.3	0.3
7	0 58 19.16	0 58 14.04	0.22	4 25 11.3	4 24 41.1	1.3	0.3
9	0 58 8.99	0 58 4.02	0.21	4 24 11.3	4 23 42.1	1.2	0.3
11	0 57 59.12	0 57 54.31	0.21	4 23 13.3	4 22 45.2	1.2	0.3
13	0 57 49.56	0 57 44.90	0.20	4 22 17.5	4 21 50.5	1.1	0.3
15	0 57 40.32	0 57 35.83	0.19	4 21 23.9	4 20 58.0	1.1	0.3
17	0 57 31.42	0 57 27.12	0.18	4 20 32.7	4 20 8.0	1.0	0.3
19	0 57 22.89	0 57 18.77	0.17	4 19 43.9	4 19 20.4	1.0	0.3
21	0 57 14.72	0 57 10.78	0.17	4 18 57.6	4 18 35.4	0.9	0.3
23	0 57 6.93	0 57 3.19	0.16	4 18 13.9	4 17 53.0	0.9	0.3
25	0 56 59.54	0 56 56.00	0.15	4 17 32.8	4 17 13.2	0.8	0.3
27	0 56 52.57	0 56 49.24	0.14	4 16 54.4	4 16 36.3	0.8	0.3
29	0 56 46.01	0 56 42.89	0.13	4 16 18.9	4 16 2.1	0.7	0.3
Dec. 1	0 56 39.88	0 56 36.98	0.12	4 15 46.0	4 15 30.7	0.7	0.3
3	0 56 34.18	0 56 31.50	0.11	4 15 16.1	4 15 2.3	0.6	0.3
5	0 56 28.93	0 56 26.49	0.10	4 14 49.2	4 14 36.9	0.5	0.3
7	0 56 24.14	0 56 21.92	0.09	4 14 25.3	4 14 14.5	0.4	0.3
9	0 56 19.81	0 56 17.83	0.08	4 14 4.4	4 13 55.1	0.4	0.3
11	0 56 15.96	0 56 14.22	0.07	4 13 46.5	4 13 38.8	0.3	0.3
13	0 56 12.61	0 56 11.12	0.06	4 13 31.8	4 13 25.7	0.3	0.3
15	0 56 9.74	0 56 8.49	0.05	4 13 20.3	4 13 15.7	0.2	0.3
17	0 56 7.37	0 56 6.37	0.04	4 13 11.9	4 13 8.9	0.1	0.3
19	0 56 5.50	0 56 4.76	0.03	4 13 6.7	4 13 5.4	0.1	0.3
21	0 56 4.14	0 56 3.65	0.02	4 13 4.9	4 13 5.2	0.0	0.3
23	0 56 3.28	0 56 3.04	0.01	4 13 6.3	4 13 8.2	0.1	0.3
25	0 56 2.93	0 56 2.94	0.00	4 13 10.9	4 13 14.4	0.2	0.3
			+				
27	0 56 3.09	0 56 3.36	0.01	4 13 18.7	4 13 23.8	0.2	0.3
29	0 56 3.77	0 56 4.30	0.02	4 13 29.8	4 13 36.5	0.3	0.3
31	0 56 4.96	0 56 5.74	0.03	4 13 44.1	4 13 52.4	0.3	0.3

MEAN PLACES FOR JANUARY 0 + 565. (See page 329.)

Star's Name.	Mag.	Right Ascension.	Annual Var.	Declination.	Annual Var.
α Andromedæ - - -	2	^h 0 ^m 1 ^s 34' 065	+ 3' 0861	N. 28 21 41' 82	+ 19' 900
γ Pegasi (<i>Algenib</i>)	3.2	0 6 26' 386	3' 0809	N. 14 26 58' 34	20' 028
β Hydri - - - - -	3	0 18 46' 365	3' 2815	S. 77 59 54' 90	20' 248
12 Ceti - - - - -	6	0 23 18' 150	3' 0593	S. 4 41 13' 37	19' 041
α Cassiopeæ - - -	var.	0 33 1' 970	3' 3612	N. 55 48 46' 70	19' 807
β Ceti - - - - -	2	0 36 57' 628	3' 0122	S. 18 42 42' 55	19' 814
ϵ Piscium - - - -	4	0 56 5' 690	3' 1108	N. 7 10 43' 56	19' 457
α Urs. Min. (<i>Polaris</i>)	2	1 10 37' 023	19' 9130	N. 88 36 20' 53	19' 109
θ Ceti - - - - -	3	1 17 25' 474	2' 9964	S. 8 51 55' 64	18' 701
η Piscium - - - -	4.3	1 24 25' 306	3' 1980	N. 14 39 51' 81	18' 706
α Eridani (<i>Achernar</i>)	1	1 32 47' 556	2' 2351	S. 57 54 28' 35	18' 421
ν Piscium - - - -	5.4	1 34 33' 774	3' 1137	N. 4 49 6' 82	18' 328
β Arietis - - - -	3.2	1 47 21' 067	3' 2958	N. 20 9 41' 65	17' 783
α Arietis - - - -	2	1 59 44' 182	3' 3661	N. 22 50 12' 40	17' 229
67 Ceti - - - - -	6	2 10 23' 951	2' 9863	S. 7 1 54' 98	16' 761
ξ Ceti - - - - -	4	2 21 8' 565	3' 1800	N. 7 52 0' 00	16' 351
γ Ceti - - - - -	3.4	2 36 27' 708	3' 1011	N. 2 40 39' 14	15' 377
α Ceti - - - - -	2.3	2 55 22' 785	3' 1271	N. 3 34 11' 30	14' 351
δ Arietis - - - -	4.5	3 4 5' 062	3' 4179	N. 19 13 31' 82	13' 927
α Persei - - - -	2	3 14 54' 681	4' 2471	N. 49 23 18' 53	13' 177
η Tauri - - - - -	3	3 39 38' 439	3' 5520	N. 23 41 40' 32	11' 467
γ Eridani - - - -	3	3 51 52' 206	2' 7944	S. 13 53 9' 92	10' 519
ϵ Eridani - - - -	4.5	4 5 25' 357	2' 9213	S. 7 11 1' 37	9' 689
ϵ Tauri - - - - -	4.3	4 20 54' 636	3' 4921	N. 18 53 6' 02	8' 368
α Tauri (<i>Aldebaran</i>)	1	4 28 20' 911	3' 4351	N. 16 14 28' 88	7' 631
ϵ Aurigæ - - - -	3	4 48 24' 022	3' 8944	N. 32 57 14' 56	6' 144
ϵ Leporis - - - -	4.3	4 59 52' 339	2' 5358	S. 22 33 1' 67	5' 130
α Aurigæ (<i>Capella</i>)	1	5 6 56' 495	4' 4214	N. 45 51 36' 27	4' 169
β Orionis (<i>Rigel</i>)	1	5 8 11' 651	2' 8798	S. 8 21 24' 07	4' 473
β Tauri - - - - -	2	5 17 56' 912	3' 7871	N. 28 29 33' 51	3' 458
δ Orionis - - - -	2	5 25 15' 847	3' 0640	S. 0 23 58' 60	2' 987
α Leporis - - - -	3	5 26 54' 564	2' 6460	S. 17 55 8' 13	2' 887
ϵ Orionis - - - -	2	5 29 30' 932	3' 0414	S. 1 17 19' 92	2' 642
α Columbæ - - - -	2	5 34 52' 365	2' 1778	S. 34 8 44' 51	2' 193
α Orionis - - - -	var.	5 48 1' 534	3' 2461	N. 7 22 46' 56	+ 1' 042
ν Orionis - - - -	5.4	6 0 2' 134	3' 4260	N. 14 46 53' 08	- 0' 024
μ Geminorum - - -	3	6 14 58' 477	3' 6322	N. 22 34 41' 64	1' 439
α Argûs (<i>Canopus</i>)	1	6 21 1' 422	1' 3303	S. 52 37 28' 38	1' 838
γ Geminorum - - -	2.3	6 30 5' 169	3' 4662	N. 16 30 33' 40	2' 552
51 (Hev.) Cephei - -	5	6 37 40' 253	30' 2917	N. 87 14 28' 05	3' 381
α Canis Maj. (<i>Sirius</i>)	1	6 39 19' 993	2' 6451	S. 16 32 15' 23	4' 651
ϵ Canis Majoris - -	2.1	6 53 26' 311	2' 3579	S. 28 47 40' 79	4' 646
γ Canis Majoris - -	4.5	6 57 47' 228	2' 7158	S. 15 26 24' 97	4' 991
δ Geminorum - - -	3.4	7 12 14' 294	3' 5915	N. 22 13 21' 12	6' 235
α Geminor. (<i>Castor</i>)	2.1	7 26 10' 469	3' 8420	N. 32 10 29' 86	7' 442
α Can. Min. (<i>Procyon</i>)	1	7 32 23' 399	3' 1447	N. 5 33 40' 24	8' 900
β Geminor. (<i>Pollux</i>)	1.2	7 37 14' 102	3' 6816	N. 28 20 32' 19	8' 316
6 α Cancrî - - - -	5	7 55 24' 507	3' 6945	N. 28 9 42' 82	9' 745
15 Argûs - - - -	3	8 1 55' 369	2' 5548	S. 23 55 31' 76	10' 107
η Cancrî - - - -	6	8 25 4' 286	+ 3' 4790	N. 20 53 14' 31	- 11' 921

MEAN PLACES FOR JANUARY 0 + ^d565. (See page 329.)

Star's Name.	Mag.	Right Ascension.	Annual Var.	Declination.	Annual Var.
		^h ^m ^s	⁺ ^s	[°] ['] ["]	⁻ ["]
ϵ Hydræ - - -	3.4	8 39 47.065	+ 3.1839	N. 6 54 4.51	-12.916
ϵ Ursæ Majoris - -	3	8 50 9.347	4.1410	N.48 33 27.28	13.835
83 Cancrī - - -	6	9 11 36.525	3.3560	N.18 15 47.18	15.045
ϵ Argūs - - -	2	9 13 33.344	1.6017	S.58 43 17.18	14.925
α Hydræ - - -	2	9 21 5.992	2.9485	S. 8 5 16.75	15.393
θ Ursæ Majoris - -	3	9 24 0.716	4.0530	N.52 16 37.15	16.147
ϵ Leonis - - -	3	9 38 21.242	3.4191	N.24 22 49.87	16.364
π Leonis - - -	5	9 53 14.163	3.1766	N. 8 40 34.25	17.095
α Leonis (<i>Regulus</i>)	1.2	10 1 20.372	3.2024	N.12 36 40.14	17.418
γ Leonis - - -	2	10 12 41.489	3.3166	N.20.30 29.04	18.044
ρ Leonis - - -	4	10 25 51.557	3.1662	N. 9 59 5.47	18.417
η Argūs - - -	2	10 39 56.742	2.3089	S.58 59 25.24	18.753
ι Leonis - - -	5	10 42 18.978	3.1577	N.11 14 34.82	18.930
α Ursæ Majoris - -	2	10 55 33.638	3.7669	N.62 27 45.80	19.357
χ Leonis - - -	5	10 58 12.402	3.0983	N. 8 2 55.80	19.406
δ Leonis - - -	2.3	11 7 5.108	3.2026	N.21 14 46.81	19.668
δ Hydræ et Crateris-	3.4	11 12 44.513	2.9948	S.14 3 53.22	19.453
ν Leonis - - -	5.4	11 30 11.421	3.0690	S. 0 5 42.43	19.858
β Leonis - - -	2	11 42 19.452	3.0650	N.15 18 35.59	20.097
γ Ursæ Majoris - -	2.3	11 46 52.534	3.1903	N.54 25 42.86	20.027
ϵ Corvi - - -	3	12 3 20.349	3.0753	S.21 53 7.55	20.046
β Chamæleontis - -	5	12 10 39.267	3.3360	S.78 34 45.89	20.042
η Virginis - - -	3.4	12 13 9.115	3.0649	N. 0 4 1.76	20.055
α Crucis - - -	1	12 19 16.173	3.2637	S.62 21 58.31	19.933
β Corvi - - -	2.3	12 27 27.245	3.1315	S.22 39 59.83	19.978
γ Virginis - - -	3.2	12 34 58.340	3.0374	S. 0 43 32.09	19.868
12 Canum Venaticor.-	3	12 49 50.855	2.8164	N.39 1 54.65	19.525
θ Virginis - - -	4.5	13 3 6.989	3.0988	S. 4 50 0.90	19.338
α Virginis (<i>Spica</i>)	1	13 18 14.436	3.1504	S.10 28 17.58	18.936
ζ Virginis - - -	3.4	13 27 58.128	3.0521	N. 0 4 48.70	18.531
η Ursæ Majoris - -	2	13 42 20.184	2.3730	N.49 58 22.46	18.112
η Bootis - - -	3	13 48 23.955	2.8581	N.19 3 37.54	18.206
β Centauri - - -	1	13 54 31.935	4.1601	S.59 44 4.26	17.670
τ Virginis - - -	4	13 54 55.750	3.0475	N. 2 11 3.79	17.652
α Bootis (<i>Arcturus</i>)	1	14 9 38.429	2.7337	N.19 52 15.23	18.909
ρ Bootis - - -	4.3	14 26 8.475	2.5869	N.30 57 8.00	15.976
α Centauri - - -	1	14 30 40.255	4.0349	S.60 17 9.08	15.030
ϵ Bootis - - -	2.3	14 39 13.264	2.6194	N.27 37 55.16	15.401
α Libræ - - -	2.3	14 43 34.724	+ 3.3055	S.15 29 29.17	15.218
ψ Ursæ Minoris - -	2	14 51 7.358	- 0.2509	N.74 41 40.75	14.756
ψ Bootis - - -	4.5	14 58 47.436	+ 2.5704	N.27 27 50.22	14.252
β Libræ - - -	2	15 9 54.321	3.2186	S. 8 53 38.03	13.568
α Coronæ Borealis -	2	15 29 5.915	2.5377	N.27 9 38.31	12.342
α Serpentis - - -	2.3	15 37 45.960	+ 2.9491	N. 6 50 34.46	11.604
ζ Ursæ Minoris - -	4.5	15 48 50.155	- 2.2926	N.78 11 57.25	10.857
β Scorpii - - -	2	15 57 45.848	+ 3.4772	S.19 26 29.84	10.215
δ Ophiuchi - - -	3	16 7 25.713	3.1360	S. 3 21 7.89	9.580
α Scorpii (<i>Antares</i>)	1.2	16 21 19.000	3.6664	S.26 8 10.83	8.397
η Draconis - - -	3.2	16 22 13.201	0.8232	N.61 48 49.38	8.219
α Trianguli Australis	2	16 34 42.995	+ 6.2801	S.68 46 49.35	- 7.368

MEAN PLACES FOR JANUARY 0 + 565 (See page 329.)

Star's Name.	Mag.	Right Ascension.	Annual Var.	Declination.	Annual Var.
ζ Herculis - - -	3.2	^h 16 ^m 36 ^s 18.636	+ 2.2624	N. 31 50 37.53	- 6.715
κ Ophiuchi - - -	3.4	16 51 25.270	+ 2.8339	N. 9 34 56.87	5.888
ϵ Ursæ Minoris - -	4.5	16 59 36.043	- 6.3958	N.82 14 59.42	5.229
α Herculis - - -	var.	17 8 37.672	+ 2.7320	N.14 32 34.88	4.412
θ Ophiuchi - - -	3.4	17 13 54.204	3.6764	S.24 51 51.38	3.988
β Draconis - - -	3.2	17 27 26.997	1.3506	N.52 24 0.33	2.835
α Ophiuchi - - -	2	17 28 48.387	2.7807	N.12 39 30.28	2.928
μ Herculis - - -	3.4	17 41 17.534	2.3424	N.27 47 58.71	2.369
γ Draconis - - -	2.3	17 53 32.493	1.3923	N.51 30 19.31	- 0.604
σ Octantis - - -	6	18 2 44.517	109.8862	S.89 16 43.04	+ 0.407
μ^1 Sagittarii - - -	4	18 5 52.058	+ 3.5845	S.21 5 25.78	0.510
δ Ursæ Minoris - -	4.5	18 14 55.459	- 19.3910	N.86 36 18.45	1.317
α Lyrae (<i>Vega</i>) - -	1	18 32 28.094	+ 2.0304	N.38 39 45.01	3.120
β Lyrae - - -	var.	18 45 12.289	2.2121	N.33 12 39.30	3.904
ζ Aquilæ - - -	3	18 59 20.406	2.7521	N.13 40 10.36	5.063
ω Aquilæ - - -	6.5	19 11 37.165	2.8140	N.11 21 33.77	6.185
δ Aquilæ - - -	3.4	19 18 50.470	3.0240	N. 2 51 14.23	6.865
λ^1 Sagittarii - - -	5.4	19 28 40.155	3.6559	S.25 10 18.04	7.590
γ Aquilæ - - -	3	19 39 58.954	2.8515	N.10 17 37.26	8.479
α Aquilæ (<i>Altair</i>) -	1.2	19 44 20.490	2.9273	N. 8 31 18.65	9.202
β Aquilæ - - -	4	19 48 49.657	+ 2.9464	N. 6 4 44.86	8.695
λ Ursæ Minoris - -	5	19 56 15.544	- 58.7132	N.88 54 45.00	9.712
α^1 Capricorni - - -	3.4	20 10 43.630	+ 3.3325	S.12 57 6.75	10.831
α Pavonis - - -	2	20 15 11.594	4.7966	S.57 9 15.86	11.129
ρ Capricorni - - -	5	20 21 19.532	3.4258	S.18 14 51.60	11.594
α Cygni - - -	2.1	20 36 55.874	2.0429	N.44 48 35.61	12.686
β Vulpeculæ - - -	5.6	20 48 56.046	2.5537	N.27 33 25.38	13.484
δ^1 Cygni - - -	5.6	21 0 58.602	2.6736	N.38 6 6.38	17.489
ζ Cygni - - -	3	21 7 19.058	2.5481	N.29 41 12.08	14.557
α Cephei - - -	3.2	21 15 25.640	1.4378	N.62 1 36.17	15.110
β Aquarii - - -	3	21 24 36.418	3.1626	S. 6 9 1.13	15.626
β Cephei - - -	3	21 26 56.784	0.8004	N.69 58 52.84	15.706
ϵ Pegasi - - -	2.3	21 37 42.151	2.9479	N. 9 16 16.05	16.315
δ Pegasi - - -	5.6	21 47 3.418	2.7261	N.25 18 18.06	16.767
α Aquarii - - -	3	21 59 0.110	3.0824	S. 0 57 36.44	17.313
α Gruis - - -	2	21 59 54.115	3.8153	S.47 35 54.36	17.184
θ Aquarii - - -	4.5	22 9 51.954	3.1694	S. 8 26 21.90	17.751
η Aquarii - - -	4.3	22 28 34.299	3.0820	S. 0 47 49.03	18.425
ζ Pegasi - - -	3.4	22 34 52.622	2.9870	N.10 8 35.47	18.691
α Pis. Aus. (<i>Fomalhaut</i>)	1.2	22 50 20.984	3.3291	S.30 19 16.29	18.963
α Pegasi (<i>Markab</i>) -	2	22 58 11.170	2.9831	N.14 29 44.42	19.309
γ Piscium - - -	4	23 10 19.312	3.1062	N. 2 33 41.23	19.572
κ Piscium - - -	5.4	23 20 9.935	3.0745	N. 0 31 59.95	19.634
ι Piscium - - -	4.5	23 33 9.695	3.0843	N. 4 54 39.55	19.467
γ Cephei - - -	3.4	23 33 57.058	2.4004	N.76 53 44.70	20.077
δ Sculptoris - - -	4.5	23 42 2.743	3.1323	S.28 51 35.20	19.924
ω Piscium - - -	4	23 52 32.043	+ 3.0775	N. 6 7 57.03	+ 19.915

FORMULÆ OF REDUCTION.

ACCORDING TO THE LATE PROFESSOR BESSEL.

1.—*Adopting the Notation of the British Association Catalogue and the Coefficients of Professor Peters (Numerus Constans Nutationis, p. 75).*

$$A = -20''.4451 \cos \omega \cos \odot$$

$$B = -20''.4451 \sin \odot$$

$$C = t - 0''.02519 \sin 2 \odot - 0''.34241 \sin \mathcal{Q} + 0''.00410 \sin 2 \mathcal{Q} - 0''.00405 \sin 2 \mathcal{C}$$

$$D = -0''.5507 \cos 2 \odot - 9''.2237 \cos \mathcal{Q} + 0''.0895 \cos 2 \mathcal{Q} - 0''.0885 \cos 2 \mathcal{C}$$

$$a = \cos \alpha \sec \delta$$

$$b = \sin \alpha \sec \delta$$

$$c = 46''.0816 + 20''.0549 \sin \alpha \tan \delta$$

$$d = \cos \alpha \tan \delta$$

$$a' = \tan \omega \cos \delta - \sin \alpha \sin \delta$$

$$b' = \cos \alpha \sin \delta$$

$$c' = 20''.0549 \cos \alpha$$

$$d' = -\sin \alpha$$

Δc = the annual proper motion in Right Ascension, in *arc*.

$\Delta c'$ = the annual proper motion in Declination.

Where t denotes the time reckoned from the moment when the Sun's mean longitude was 280° (Jan. 0 + .565) and expressed in fractional parts of a tropical year, \odot the Sun's and \mathcal{C} the Moon's true longitude, \mathcal{Q} the mean longitude of the Moon's node, and ω the obliquity of the Ecliptic, each for the time t : α the mean Right Ascension, in *arc*, and δ the mean Declination for the beginning of the year. Then, for the time represented by t ,

$$\text{Apparent R.A., in arc,} = \alpha + A a + B b + C c + D d + t \Delta c.$$

$$\text{Apparent Dec.} \quad - \quad - \quad - \quad = \delta + A a' + B b' + C c' + D d' + t \Delta c'.$$

2.—*Using the same Notation and Coefficients, and assuming*

$$46''.0816 C = f \qquad B = h \cos H$$

$$20''.0549 C = g \cos G \qquad A = h \sin H$$

$$D = g \sin G \qquad A \tan \omega = i$$

$$\text{Apparent R.A., in arc,} = \alpha + f + t \Delta c$$

$$+ g \sin (G + \alpha) \tan \delta + h \sin (H + \alpha) \sec \delta$$

$$\text{Apparent Dec.} \quad - \quad - \quad - \quad = \delta + i \cos \delta + t \Delta c'$$

$$+ g \cos (G + \alpha) + h \cos (H + \alpha) \sin \delta$$

CONSTANTS FOR FACILITATING THE REDUCTION OF STARS.

Month and Day.	At Greenwich Mean Midnight.						
	<i>f</i>	<i>g</i>	<i>G</i>	<i>h</i>	<i>H</i>	<i>i</i>	
Jan.	1	— 5 ^h 48	+ 9 ^h 44	104 39	+20 ^h 38	349 57	— 1 ^h 55
	6	4 ^h 74	9 ^h 30	102 49	20 ^h 32	345 15	2 ^h 25
	11	4 ^h 01	9 ^h 16	100 59	20 ^h 23	340 29	2 ^h 93
	16	3 ^h 31	9 ^h 02	99 12	20 ^h 12	335 42	3 ^h 59
	21	— 2 ^h 63	+ 8 ^h 88	97 26	+20 ^h 00	330 51	— 4 ^h 23
	26	1 ^h 99	8 ^h 74	95 42	19 ^h 86	325 56	4 ^h 82
	31	1 ^h 39	8 ^h 60	94 2	19 ^h 72	320 58	5 ^h 39
	Feb. 5	0 ^h 82	8 ^h 48	92 25	19 ^h 57	315 56	5 ^h 90
	10	— 0 ^h 29	+ 8 ^h 35	90 51	+19 ^h 43	310 50	— 6 ^h 38
	15	+ 0 ^h 21	8 ^h 24	89 21	19 ^h 28	305 40	6 ^h 79
	20	0 ^h 68	8 ^h 15	87 55	19 ^h 15	300 26	7 ^h 17
	25	1 ^h 11	8 ^h 06	86 33	19 ^h 03	295 8	7 ^h 48
Mar.	1	+ 1 ^h 53	+ 7 ^h 99	85 14	+18 ^h 93	289 47	— 7 ^h 73
	6	1 ^h 92	7 ^h 94	83 58	18 ^h 85	284 25	7 ^h 92
	11	2 ^h 30	7 ^h 90	82 44	18 ^h 79	279 0	8 ^h 05
	16	2 ^h 66	7 ^h 89	81 33	18 ^h 76	273 35	8 ^h 12
	21	+ 3 ^h 02	+ 7 ^h 89	80 24	+18 ^h 76	268 11	— 8 ^h 13
	26	3 ^h 39	7 ^h 91	79 15	18 ^h 78	262 47	8 ^h 08
	31	3 ^h 77	7 ^h 95	78 7	18 ^h 83	257 26	7 ^h 97
	April 5	4 ^h 15	8 ^h 01	76 58	18 ^h 90	252 8	7 ^h 80
	10	+ 4 ^h 56	+ 8 ^h 09	75 48	+18 ^h 99	246 53	— 7 ^h 58
	15	4 ^h 99	8 ^h 19	74 37	19 ^h 10	241 43	7 ^h 30
	20	5 ^h 45	8 ^h 30	73 23	19 ^h 22	236 37	6 ^h 96
	25	5 ^h 94	8 ^h 43	72 7	19 ^h 35	231 36	6 ^h 58
May	30	+ 6 ^h 46	+ 8 ^h 56	70 49	+19 ^h 50	226 40	— 6 ^h 15
	5	7 ^h 02	8 ^h 71	69 29	19 ^h 64	221 49	5 ^h 68
	10	7 ^h 61	8 ^h 87	68 6	19 ^h 78	217 3	5 ^h 17
	15	8 ^h 22	9 ^h 04	66 40	19 ^h 92	212 22	4 ^h 62
	20	+ 8 ^h 88	+ 9 ^h 21	65 12	+20 ^h 04	207 44	— 4 ^h 05
	25	9 ^h 55	9 ^h 39	63 42	20 ^h 15	203 11	3 ^h 44
	30	10 ^h 26	9 ^h 56	62 11	20 ^h 25	198 40	2 ^h 81
	June 4	10 ^h 98	9 ^h 74	60 38	20 ^h 33	194 13	2 ^h 17
	9	+11 ^h 72	+ 9 ^h 92	59 3	+20 ^h 39	189 48	— 1 ^h 51
	14	12 ^h 48	10 ^h 10	57 28	20 ^h 43	185 24	0 ^h 84
	19	13 ^h 23	10 ^h 27	55 53	20 ^h 44	181 1	— 0 ^h 16
	24	13 ^h 99	10 ^h 43	54 18	20 ^h 44	176 39	+ 0 ^h 52
29	14 ^h 75	10 ^h 60	52 43	20 ^h 41	172 16	1 ^h 19	
July 4	+15 ^h 50	+10 ^h 75	51 9	+20 ^h 36	167 52	+ 1 ^h 86	

CONSTANTS FOR FACILITATING THE REDUCTION OF STARS.

Month and Day.	At Greenwich Mean Midnight.					
	<i>f</i>	<i>g</i>	<i>G</i>	<i>h</i>	<i>H</i>	<i>i</i>
July 4	+15° 50	+10° 75	51 9	+20° 36	167 52	+ 1° 86
9	16° 23	10° 90	49 37	20° 29	163 27	2° 51
14	16° 95	11° 04	48 7	20° 20	158 59	3° 15
19	17° 64	11° 18	46 38	20° 10	154 29	3° 76
24	+18° 30	+11° 31	45 13	+19° 98	149 57	+ 4° 34
29	18° 94	11° 43	43 50	19° 85	145 18	4° 90
Aug. 3	19° 55	11° 54	42 31	19° 71	140 35	5° 43
8	20° 12	11° 65	41 16	19° 57	135 51	5° 92
13	+20° 66	+11° 75	40 5	+19° 43	131 0	+ 6° 37
18	21° 18	11° 85	38 58	19° 29	126 5	6° 77
23	21° 66	11° 95	37 57	19° 16	121 5	7° 12
28	22° 11	12° 05	37 0	19° 05	116 0	7° 43
Sept. 2	+22° 54	+12° 14	36 8	+18° 95	110 52	+ 7° 68
7	22° 94	12° 24	35 21	18° 87	105 39	7° 88
12	23° 33	12° 35	34 39	18° 81	100 24	8° 02
17	23° 71	12° 45	34 2	18° 77	95 5	8° 11
22	+24° 09	+12° 57	33 30	+18° 76	89 45	+ 8° 14
27	24° 46	12° 70	33 2	18° 77	84 24	8° 11
Oct. 2	24° 84	12° 84	32 37	18° 81	79 4	8° 01
7	25° 23	12° 99	32 16	18° 87	73 44	7° 86
12	+25° 64	+13° 15	31 58	+18° 95	68 26	+ 7° 65
17	26° 07	13° 33	31 41	19° 06	63 10	7° 38
22	26° 52	13° 53	31 26	19° 18	57 56	7° 06
27	27° 01	13° 74	31 11	19° 32	52 46	6° 68
Nov. 1	+27° 53	+13° 97	30 56	+19° 46	47 40	+ 6° 25
6	28° 09	14° 21	30 40	19° 62	42 38	5° 77
11	28° 68	14° 47	30 23	19° 77	37 40	5° 24
16	29° 30	14° 73	30 4	19° 91	32 45	4° 67
21	+29° 96	+15° 01	29 43	+20° 04	27 53	+ 4° 06
26	30° 65	15° 30	29 20	20° 16	23 5	3° 43
Dec. 1	31° 37	15° 60	28 54	20° 26	18 20	2° 77
6	32° 12	15° 89	28 25	20° 35	13 36	2° 08
11	+32° 88	+16° 19	27 54	+20° 40	8 54	+ 1° 37
16	33° 66	16° 49	27 20	20° 43	4 13	+ 0° 65
21	34° 44	16° 78	26 44	20° 44	359 33	— 0° 07
26	35° 22	17° 07	26 6	20° 43	354 52	0° 79
31	+35° 99	+17° 35	25 27	+20° 39	350 10	— 1° 50

APPARENT PLACES OF α URSÆ MINORIS (*Polaris*),
FOR THE UPPER TRANSIT AT GREENWICH.

Day of the Month.	JANUARY.		FEBRUARY.		MARCH.		APRIL.		Day of the Month.
	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	
	^h 1	^m 10	[°] 88	['] 36	^h 1	^m 10	[°] 88	['] 36	
1	66 ^s ·10	35 ^s ·7	38 ^s ·57	35 ^s ·5	17 ^s ·53	30 ^s ·2	7 ^s ·53	21 ^s ·0	1
2	65 ^s ·22	35 ^s ·7	37 ^s ·72	35 ^s ·4	16 ^s ·98	29 ^s ·9	7 ^s ·47	20 ^s ·7	2
3	64 ^s ·34	35 ^s ·8	36 ^s ·88	35 ^s ·3	16 ^s ·44	29 ^s ·7	7 ^s ·43	20 ^s ·4	3
4	63 ^s ·46	35 ^s ·8	36 ^s ·05	35 ^s ·2	15 ^s ·91	29 ^s ·4	7 ^s ·41	20 ^s ·1	4
5	62 ^s ·58	35 ^s ·9	35 ^s ·22	35 ^s ·0	15 ^s ·40	29 ^s ·2	7 ^s ·40	19 ^s ·8	5
6	61 ^s ·69	36 ^s ·0	34 ^s ·39	34 ^s ·9	14 ^s ·90	28 ^s ·9	7 ^s ·41	19 ^s ·5	6
7	60 ^s ·80	36 ^s ·1	33 ^s ·58	34 ^s ·7	14 ^s ·42	28 ^s ·6	7 ^s ·43	19 ^s ·2	7
8	59 ^s ·91	36 ^s ·1	32 ^s ·78	34 ^s ·6	13 ^s ·95	28 ^s ·4	{7 ^s ·43}	{19 ^s ·2}	8
9	59 ^s ·02	36 ^s ·2	31 ^s ·98	34 ^s ·4	13 ^s ·50	28 ^s ·1	7 ^s ·60	18 ^s ·2	9
10	58 ^s ·12	36 ^s ·3	31 ^s ·19	34 ^s ·3	13 ^s ·06	27 ^s ·8	7 ^s ·70	17 ^s ·9	10
11	57 ^s ·22	36 ^s ·3	30 ^s ·40	34 ^s ·1	12 ^s ·64	27 ^s ·5	7 ^s ·81	17 ^s ·6	11
12	56 ^s ·32	36 ^s ·3	29 ^s ·62	33 ^s ·9	12 ^s ·24	27 ^s ·2	7 ^s ·93	17 ^s ·3	12
13	55 ^s ·42	36 ^s ·4	28 ^s ·86	33 ^s ·8	11 ^s ·85	26 ^s ·9	8 ^s ·07	17 ^s ·0	13
14	54 ^s ·52	36 ^s ·4	28 ^s ·11	33 ^s ·6	11 ^s ·47	26 ^s ·6	8 ^s ·23	16 ^s ·7	14
15	53 ^s ·62	36 ^s ·4	27 ^s ·36	33 ^s ·4	11 ^s ·11	26 ^s ·3	8 ^s ·41	16 ^s ·4	15
16	52 ^s ·72	36 ^s ·4	26 ^s ·62	33 ^s ·2	10 ^s ·77	26 ^s ·0	8 ^s ·60	16 ^s ·1	16
17	51 ^s ·81	36 ^s ·4	25 ^s ·89	33 ^s ·0	10 ^s ·44	25 ^s ·7	8 ^s ·80	15 ^s ·8	17
18	50 ^s ·91	36 ^s ·3	25 ^s ·18	32 ^s ·9	10 ^s ·13	25 ^s ·4	9 ^s ·02	15 ^s ·5	18
19	50 ^s ·01	36 ^s ·3	24 ^s ·49	32 ^s ·7	9 ^s ·84	25 ^s ·1	9 ^s ·26	15 ^s ·2	19
20	49 ^s ·11	36 ^s ·3	23 ^s ·80	32 ^s ·5	9 ^s ·56	24 ^s ·8	9 ^s ·53	14 ^s ·9	20
21	48 ^s ·21	36 ^s ·3	23 ^s ·12	32 ^s ·3	9 ^s ·30	24 ^s ·5	9 ^s ·81	14 ^s ·6	21
22	47 ^s ·32	36 ^s ·2	22 ^s ·45	32 ^s ·1	9 ^s ·05	24 ^s ·2	10 ^s ·10	14 ^s ·3	22
23	46 ^s ·43	36 ^s ·2	21 ^s ·79	31 ^s ·8	8 ^s ·82	23 ^s ·9	10 ^s ·40	14 ^s ·0	23
24	45 ^s ·54	36 ^s ·1	21 ^s ·13	31 ^s ·6	8 ^s ·61	23 ^s ·6	10 ^s ·72	13 ^s ·8	24
25	44 ^s ·66	36 ^s ·1	20 ^s ·49	31 ^s ·4	8 ^s ·42	23 ^s ·3	11 ^s ·05	13 ^s ·5	25
26	43 ^s ·78	36 ^s ·0	19 ^s ·87	31 ^s ·1	8 ^s ·25	23 ^s ·0	11 ^s ·40	13 ^s ·2	26
27	42 ^s ·90	35 ^s ·9	19 ^s ·27	30 ^s ·9	8 ^s ·09	22 ^s ·7	11 ^s ·76	13 ^s ·0	27
28	42 ^s ·02	35 ^s ·9	18 ^s ·68	30 ^s ·6	7 ^s ·94	22 ^s ·4	12 ^s ·14	12 ^s ·7	28
29	41 ^s ·15	35 ^s ·8	18 ^s ·10	30 ^s ·4	7 ^s ·81	22 ^s ·0	12 ^s ·53	12 ^s ·4	29
30	40 ^s ·28	35 ^s ·7	17 ^s ·53	30 ^s ·2	7 ^s ·70	21 ^s ·7	12 ^s ·93	12 ^s ·1	30
31	39 ^s ·42	35 ^s ·6	- -	- -	7 ^s ·61	21 ^s ·4	13 ^s ·35	11 ^s ·9	31
32	38 ^s ·57	35 ^s ·5	- -	- -	7 ^s ·53	21 ^s ·0	- -	- -	32

APPARENT PLACES OF α URSÆ MINORIS (*Polaris*), FOR THE UPPER TRANSIT AT GREENWICH.

Day of the Month.	MAY.		JUNE.		JULY.		AUGUST.		Day of the Month.
	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	
	^h ^m I IO	[°] ['] 88 36	^h ^m I IO	[°] ['] 88 36	^h ^m I IO	[°] ['] 88 36	^h ^m I II	[°] ['] 88 36	
1	13 ^s 35	11 ^s 9	32 ^s 42	5 ^s 6	57 ^s 77	4 ^s 1	24 ^s 43	7 ^s 8	1
2	13 ^s 79	11 ^s 6	33 ^s 19	5 ^s 5	58 ^s 66	4 ^s 1	25 ^s 23	8 ^s 0	2
3	14 ^s 24	11 ^s 4	33 ^s 97	5 ^s 4	59 ^s 55	4 ^s 1	26 ^s 02	8 ^s 2	3
4	14 ^s 70	11 ^s 1	34 ^s 76	5 ^s 2	60 ^s 43	4 ^s 2	26 ^s 81	8 ^s 4	4
5	15 ^s 17	10 ^s 9	35 ^s 55	5 ^s 1	61 ^s 32	4 ^s 2	27 ^s 59	8 ^s 6	5
6	15 ^s 66	10 ^s 6	36 ^s 35	5 ^s 0	62 ^s 20	4 ^s 3	28 ^s 36	8 ^s 8	6
7	16 ^s 16	10 ^s 4	37 ^s 15	4 ^s 9	63 ^s 09	4 ^s 4	29 ^s 12	9 ^s 0	7
8	16 ^s 68	10 ^s 1	37 ^s 96	4 ^s 8	63 ^s 98	4 ^s 5	29 ^s 88	9 ^s 2	8
9	17 ^s 21	9 ^s 8	38 ^s 78	4 ^s 7	64 ^s 87	4 ^s 6	30 ^s 63	9 ^s 5	9
10	17 ^s 75	9 ^s 6	39 ^s 60	4 ^s 6	65 ^s 75	4 ^s 7	31 ^s 38	9 ^s 7	10
11	18 ^s 10	9 ^s 4	40 ^s 43	4 ^s 5	66 ^s 63	4 ^s 8	32 ^s 12	9 ^s 9	11
12	18 ^s 87	9 ^s 1	41 ^s 27	4 ^s 4	67 ^s 51	4 ^s 9	32 ^s 85	10 ^s 2	12
13	19 ^s 45	8 ^s 9	42 ^s 11	4 ^s 3	68 ^s 39	5 ^s 0	33 ^s 58	10 ^s 4	13
14	20 ^s 04	8 ^s 7	42 ^s 95	4 ^s 2	69 ^s 26	5 ^s 1	34 ^s 30	10 ^s 7	14
15	20 ^s 64	8 ^s 5	43 ^s 80	4 ^s 2	70 ^s 13	5 ^s 2	35 ^s 01	10 ^s 9	15
16	21 ^s 25	8 ^s 3	44 ^s 65	4 ^s 1	71 ^s 00	5 ^s 3	35 ^s 70	11 ^s 2	16
17	21 ^s 87	8 ^s 1	45 ^s 51	4 ^s 1	71 ^s 87	5 ^s 4	36 ^s 39	11 ^s 4	17
18	22 ^s 51	7 ^s 9	46 ^s 37	4 ^s 1	72 ^s 74	5 ^s 5	37 ^s 07	11 ^s 7	18
19	23 ^s 16	7 ^s 7	47 ^s 23	4 ^s 1	73 ^s 60	5 ^s 6	37 ^s 75	12 ^s 0	19
20	23 ^s 82	7 ^s 5	48 ^s 10	4 ^s 1	74 ^s 46	5 ^s 7	38 ^s 42	12 ^s 3	20
21	24 ^s 48	7 ^s 3	48 ^s 97	4 ^s 1	75 ^s 31	5 ^s 9	39 ^s 08	12 ^s 6	21
22	25 ^s 15	7 ^s 1	49 ^s 84	4 ^s 1	76 ^s 16	6 ^s 0	39 ^s 73	12 ^s 9	22
23	25 ^s 84	6 ^s 9	50 ^s 71	4 ^s 0	77 ^s 01	6 ^s 2	40 ^s 37	13 ^s 2	23
24	26 ^s 54	6 ^s 8	51 ^s 59	4 ^s 0	77 ^s 85	6 ^s 3	41 ^s 00	13 ^s 5	24
25	27 ^s 25	6 ^s 7	52 ^s 47	4 ^s 0	78 ^s 69	6 ^s 5	41 ^s 62	13 ^s 8	25
26	27 ^s 96	6 ^s 6	53 ^s 35	4 ^s 0	79 ^s 53	6 ^s 6	42 ^s 23	14 ^s 1	26
27	28 ^s 68	6 ^s 4	54 ^s 23	4 ^s 0	80 ^s 35	6 ^s 8	42 ^s 83	14 ^s 4	27
28	29 ^s 41	6 ^s 2	55 ^s 11	4 ^s 0	81 ^s 17	7 ^s 0	43 ^s 43	14 ^s 6	28
29	30 ^s 15	6 ^s 0	56 ^s 00	4 ^s 0	81 ^s 99	7 ^s 2	44 ^s 01	14 ^s 9	29
30	30 ^s 90	5 ^s 8	56 ^s 88	4 ^s 0	82 ^s 81	7 ^s 4	44 ^s 58	15 ^s 2	30
31	31 ^s 66	5 ^s 7	57 ^s 77	4 ^s 1	83 ^s 62	7 ^s 6	45 ^s 14	15 ^s 5	31
32	32 ^s 42	5 ^s 6	- -	- -	84 ^s 43	7 ^s 8	45 ^s 69	15 ^s 8	32

APPARENT PLACES OF α URSÆ MINORIS (*Polaris*),
FOR THE UPPER TRANSIT AT GREENWICH.

Day of the Month.	SEPTEMBER.		OCTOBER.		NOVEMBER.		DECEMBER.		Day of the Month.
	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	
	^h I	^m II	[°] 88	['] 36	^h I	^m II	[°] 88	['] 36	
1	45 ^s .69	15 ["] .8	57 ^s .01	26 ["] .3	56 ^s .38	38 ["] .0	43 ^s .19	47 ["] .8	1
2	46 ^s .24	16 ["] .1	57 ^s .20	26 ["] .7	56 ^s .13	38 ["] .4	42 ^s .55	48 ["] .1	2
3	46 ^s .78	16 ["] .4	57 ^s .37	27 ["] .0	55 ^s .87	38 ["] .7	41 ^s .90	48 ["] .3	3
4	47 ^s .30	16 ["] .7	57 ^s .53	27 ["] .4	55 ^s .60	39 ["] .1	41 ^s .24	48 ["] .6	4
5	47 ^s .81	17 ["] .0	57 ^s .67	27 ["] .8	55 ^s .32	39 ["] .5	40 ^s .58	48 ["] .8	5
6	48 ^s .31	17 ["] .4	57 ^s .80	28 ["] .2	55 ^s .02	39 ["] .8	39 ^s .90	49 ["] .0	6
7	48 ^s .80	17 ["] .7	57 ^s .92	28 ["] .6	54 ^s .71	40 ["] .2	39 ^s .21	49 ["] .3	7
8	49 ^s .28	18 ["] .0	58 ^s .03	28 ["] .9	54 ^s .38	40 ["] .5	38 ^s .51	49 ["] .5	8
9	49 ^s .74	18 ["] .4	58 ^s .12	29 ["] .3	54 ^s .04	40 ["] .9	37 ^s .80	49 ["] .7	9
10	50 ^s .19	18 ["] .7	58 ^s .20	29 ["] .7	53 ^s .69	41 ["] .2	37 ^s .08	49 ["] .9	10
11	50 ^s .63	19 ["] .1	58 ^s .26	30 ["] .1	53 ^s .32	41 ["] .6	36 ^s .34	50 ["] .1	11
12	51 ^s .07	19 ["] .4	58 ^s .31	30 ["] .5	52 ^s .94	41 ["] .9	35 ^s .60	50 ["] .3	12
13	51 ^s .50	19 ["] .8	58 ^s .35	30 ["] .9	52 ^s .54	42 ["] .3	34 ^s .85	50 ["] .5	13
14	51 ^s .91	20 ["] .1	58 ^s .37	31 ["] .3	52 ^s .13	42 ["] .6	34 ^s .10	50 ["] .7	14
15	52 ^s .31	20 ["] .5	58 ^s .38	31 ["] .7	51 ^s .71	42 ["] .9	33 ^s .34	50 ["] .9	15
16	52 ^s .70	20 ["] .8	58 ^s .37	32 ["] .1	51 ^s .27	43 ["] .2	32 ^s .56	51 ["] .1	16
17	53 ^s .07	21 ["] .2	58 ^s .35	32 ["] .4	50 ^s .82	43 ["] .6	31 ^s .77	51 ["] .3	17
18	53 ^s .43	21 ["] .6	58 ^s .32	32 ["] .8	50 ^s .36	43 ["] .9	30 ^s .97	51 ["] .4	18
19	53 ^s .78	21 ["] .9	58 ^s .27	33 ["] .2	49 ^s .88	44 ["] .2	30 ^s .17	51 ["] .6	19
20	54 ^s .12	22 ["] .3	58 ^s .21	33 ["] .5	49 ^s .39	44 ["] .5	29 ^s .36	51 ["] .8	20
21	54 ^s .45	22 ["] .7	58 ^s .14	33 ["] .9	48 ^s .89	44 ["] .8	28 ^s .54	52 ["] .0	21
22	54 ^s .76	23 ["] .0	58 ^s .05	34 ["] .3	48 ^s .38	45 ["] .1	27 ^s .72	52 ["] .1	22
23	55 ^s .06	23 ["] .4	57 ^s .95	34 ["] .7	47 ^s .85	45 ["] .4	26 ^s .89	52 ["] .3	23
24	55 ^s .35	23 ["] .8	57 ^s .83	35 ["] .1	47 ^s .31	45 ["] .7	26 ^s .05	52 ["] .5	24
25	55 ^s .63	24 ["] .1	57 ^s .70	35 ["] .4	46 ^s .76	46 ["] .0	25 ^s .21	52 ["] .6	25
26	55 ^s .89	24 ["] .5	57 ^s .55	35 ["] .8	46 ^s .19	46 ["] .3	24 ^s .36	52 ["] .8	26
27	56 ^s .14	24 ["] .9	57 ^s .39	36 ["] .2	45 ^s .61	46 ["] .6	23 ^s .51	52 ["] .9	27
28	56 ^s .38	25 ["] .3	57 ^s .22	36 ["] .5	45 ^s .02	46 ["] .9	22 ^s .65	53 ["] .0	28
29	56 ^s .60	25 ["] .6	57 ^s .03	36 ["] .9	44 ^s .42	47 ["] .2	21 ^s .79	53 ["] .1	29
30	56 ^s .81	26 ["] .0	56 ^s .83	37 ["] .3	43 ^s .81	47 ["] .5	20 ^s .92	53 ["] .2	30
31	57 ^s .01	26 ["] .3	56 ^s .61	37 ["] .6	43 ^s .19	47 ["] .8	20 ^s .04	53 ["] .3	31
32	- -	- -	56 ^s .38	38 ["] .0	- -	- -	19 ^s .16	53 ["] .4	32

APPARENT PLACES OF δ URSÆ MINORIS, FOR THE UPPER TRANSIT AT GREENWICH.

Day of the Month.	JANUARY.		FEBRUARY.		MARCH.		APRIL.		Day of the Month.
	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	
	^h ^m 18 14	[°] ['] 86 36	^h ^m 18 14	[°] ['] 86 36	^h ^m 18 14	[°] ['] 86 36	^h ^m 18 14	[°] ['] 86 36	
1	35° 63	25° 0	38° 83	14° 9	47° 01	8° 6	58° 15	7° 3	1
2	35° 62	24° 6	39° 04	14° 7	47° 35	8° 5	58° 51	7° 4	2
3	35° 62	24° 2	39° 26	14° 4	47° 69	8° 4	58° 86	7° 4	3
4	35° 63	23° 8	39° 48	14° 1	48° 04	8° 2	59° 21	7° 5	4
5	35° 65	23° 5	39° 71	13° 9	48° 39	8° 1	59° 56	7° 6	5
6	35° 68	23° 1	39° 95	13° 6	48° 74	8° 0	59° 91	7° 7	6
7	35° 71	22° 8	40° 19	13° 3	49° 09	7° 9	60° 26	7° 8	7
8	35° 75	22° 5	40° 44	13° 1	49° 44	7° 8	60° 61	7° 9	8
9	35° 80	22° 2	40° 69	12° 8	49° 79	7° 7	60° 95	8° 0	9
10	35° 85	21° 8	40° 95	12° 5	50° 15	7° 6	61° 29	8° 1	10
11	35° 91	21° 5	41° 21	12° 3	50° 51	7° 5	61° 63	8° 2	11
12	35° 98	21° 2	41° 47	12° 0	50° 87	7° 5	61° 96	8° 3	12
13	36° 06	20° 9	41° 74	11° 8	51° 23	7° 4	62° 29	8° 4	13
14	36° 15	20° 5	42° 02	11° 6	51° 59	7° 4	62° 62	8° 5	14
15	36° 24	20° 2	42° 30	11° 3	51° 95	7° 3	62° 94	8° 6	15
16	36° 34	19° 9	42° 59	11° 1	52° 32	7° 3	63° 26	8° 7	16
17	36° 45	19° 5	42° 88	10° 9	52° 68	7° 2	63° 58	8° 9	17
18	36° 56	19° 2	43° 17	10° 7	53° 05	7° 2	63° 90	9° 1	18
19	36° 67	18° 9	43° 47	10° 5	53° 42	7° 1	64° 21	9° 3	19
20	36° 80	18° 5	43° 77	10° 3	53° 79	7° 1	64° 52	9° 5	20
21	36° 93	18° 2	44° 07	10° 1	54° 16	7° 1	64° 82	9° 6	21
22	37° 07	17° 9	44° 38	9° 9	54° 53	7° 0	65° 12	9° 8	22
23	37° 22	17° 6	44° 70	9° 7	54° 90	7° 0	65° 42	10° 0	23
24	37° 38	17° 3	45° 02	9° 6	55° 26	7° 0	65° 71	10° 2	24
25	37° 54	17° 0	45° 34	9° 4	55° 62	7° 0	66° 00	10° 4	25
26	37° 71	16° 7	45° 67	9° 3	55° 99	7° 1	66° 28	10° 6	26
27	37° 88	16° 4	46° 00	9° 1	56° 35	7° 1	66° 56	10° 8	27
28	38° 06	16° 1	46° 33	8° 9	56° 71	7° 1	66° 84	11° 0	28
29	38° 24	15° 8	46° 67	8° 8	57° 07	7° 2	67° 11	11° 2	29
30	38° 43	15° 5	47° 01	8° 6	57° 43	7° 2	67° 38	11° 4	30
31	38° 63	15° 2	- -	- -	57° 79	7° 3	67° 64	11° 6	31
32	38° 83	14° 9	- -	- -	58° 15	7° 3	- -	- -	32

APPARENT PLACES OF δ URSÆ MINORIS,
FOR THE UPPER TRANSIT AT GREENWICH.

Day of the Month.	MAY.		JUNE.		JULY.		AUGUST.		Day of the Month.
	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	
	^h ₁₈ ^m ₁₅	[°] ₈₆ ['] ₃₆	^h ₁₈ ^m ₁₅	[°] ₈₆ ['] ₃₆	^h ₁₈ ^m ₁₅	[°] ₈₆ ['] ₃₆	^h ₁₈ ^m ₁₄	[°] ₈₆ ['] ₃₆	
1	^s ₇ ·64	["] ₁₁ ·6	^s ₁₃ ·03	["] ₂₀ ·0	^s ₁₂ ·58	["] ₂₉ ·4	^s ₆₆ ·42	["] ₃₈ ·1	1
2	7·89	11·8	13·10	20·3	12·47	29·8	66·14	38·4	2
3	8·14	12·0	13·17	20·6	12·35	30·1	65·85	38·6	3
4	8·39	12·2	13·24	20·9	12·23	30·4	65·56	38·8	4
5	8·63	12·4	13·30	21·2	12·10	30·7	65·26	39·1	5
6	8·86	12·6	13·35	21·5	11·96	31·0	64·96	39·3	6
7	9·09	12·9	13·39	21·8	11·82	31·3	64·66	39·5	7
8	9·32	13·2	13·43	22·1	11·67	31·6	64·35	39·7	8
9	9·54	13·4	13·46	22·5	11·51	31·9	64·04	39·9	9
10	9·76	13·7	13·49	22·8	11·35	32·2	63·72	40·1	10
11	9·97	13·9	13·52	23·1	11·19	32·5	63·40	40·3	11
12	10·17	14·2	13·54	23·4	11·02	32·8	63·07	40·5	12
13	10·37	14·5	13·55	23·7	10·84	33·0	62·74	40·7	13
14	10·56	14·7	13·54	24·0	10·65	33·3	62·41	40·9	14
15	10·75	15·0	13·53	24·3	10·46	33·6	62·07	41·1	15
16	10·93	15·3	13·52	24·6	10·26	33·9	61·73	41·3	16
17	11·11	15·6	13·50	24·9	10·06	34·2	61·38	41·5	17
18	11·28	15·8	13·48	25·2	9·85	34·4	61·03	41·6	18
19	11·44	16·1	13·45	25·6	9·64	34·7	60·68	41·8	19
20	11·60	16·4	13·41	25·9	9·43	34·9	60·33	42·0	20
21	11·75	16·7	13·36	26·2	9·21	35·2	59·97	42·2	21
22	11·90	17·0	13·31	26·5	8·98	35·5	59·61	42·4	22
23	12·04	17·3	13·26	26·8	8·75	35·7	59·24	42·6	23
24	12·18	17·6	13·19	27·2	8·51	36·0	58·87	42·7	24
25	12·31	17·9	13·12	27·5	8·27	36·3	58·50	42·9	25
26	12·43	18·2	13·05	27·8	8·02	36·5	58·13	43·0	26
27	12·54	18·5	12·97	28·1	7·76	36·8	57·75	43·1	27
28	12·65	18·8	12·88	28·4	7·50	37·1	57·37	43·2	28
29	12·76	19·1	12·79	28·8	7·24	37·4	56·99	43·4	29
30	12·86	19·4	12·69	29·1	6·97	37·6	56·61	43·5	30
31	12·95	19·7	12·58	29·4	6·70	37·9	56·22	43·6	31
32	13·03	20·0	- -	- -	6·42	38·1	55·83	43·8	32

APPARENT PLACES OF δ URSÆ MINORIS, FOR THE UPPER TRANSIT AT GREENWICH.

Day of the Month.	SEPTEMBER.		OCTOBER.		NOVEMBER.		DECEMBER.		Day of the Month.
	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	R. A.	Dec. N.	
	^h ^m 18 14	[°] ['] 86 36	^h ^m 18 14	[°] ['] 86 36	^h ^m 18 14	[°] ['] 86 36	^h ^m 18 14	[°] ['] 86 36	
1	55° 83	43° 8	43° 37	45° 1	30° 83	42° 0	21° 75	34° 7	1
2	55° 44	43° 9	42° 94	45° 1	30° 46	41° 9	21° 53	34° 4	2
3	55° 04	44° 0	42° 52	45° 1	30° 10	41° 7	21° 31	34° 1	3
4	54° 64	44° 1	42° 10	45° 0	29° 74	41° 5	21° 10	33° 8	4
5	54° 24	44° 2	41° 67	45° 0	29° 39	41° 3	20° 90	33° 5	5
6	53° 84	44° 3	41° 25	45° 0	29° 03	41° 1	20° 70	33° 2	6
7	53° 44	44° 4	40° 83	45° 0	28° 68	40° 9	20° 51	32° 9	7
8	53° 03	44° 5	40° 41	44° 9	28° 34	40° 7	20° 33	32° 6	8
9	52° 62	44° 6	39° 99	44° 9	28° 00	40° 5	20° 15	32° 3	9
10	52° 21	44° 7	39° 57	44° 8	27° 67	40° 3	19° 98	31° 9	10
11	51° 80	44° 8	39° 15	44° 8	27° 34	40° 0	19° 82	31° 6	11
12	51° 39	44° 8	38° 73	44° 7	27° 01	39° 8	19° 67	31° 3	12
13	50° 98	44° 9	38° 31	44° 6	26° 69	39° 5	19° 52	31° 0	13
14	50° 56	45° 0	37° 90	44° 5	26° 37	39° 3	19° 38	30° 7	14
15	50° 14	45° 0	37° 49	44° 4	26° 05	39° 0	19° 24	30° 3	15
16	49° 72	45° 1	37° 08	44° 3	25° 74	38° 8	19° 11	30° 0	16
17	49° 30	45° 1	36° 67	44° 2	25° 44	38° 5	18° 99	29° 6	17
18	48° 88	45° 1	36° 27	44° 0	25° 14	38° 3	18° 88	29° 3	18
19	48° 46	45° 2	35° 86	43° 9	24° 85	38° 0	18° 77	28° 9	19
20	48° 03	45° 2	35° 46	43° 7	24° 56	37° 7	18° 67	28° 6	20
21	47° 61	45° 2	35° 06	43° 6	24° 28	37° 5	18° 58	28° 2	21
22	47° 19	45° 2	34° 66	43° 4	24° 00	37° 2	18° 49	27° 9	22
23	46° 76	45° 3	34° 26	43° 3	23° 73	37° 0	18° 41	27° 6	23
24	46° 34	45° 3	33° 87	43° 2	23° 47	36° 7	{18° 33}	{27° 3}	24
25	45° 92	45° 3	33° 48	43° 1	23° 20	36° 5	18° 22	26° 6	25
26	45° 49	45° 3	33° 09	42° 9	22° 94	36° 2	18° 17	26° 2	26
27	45° 07	45° 3	32° 71	42° 8	22° 69	35° 9	18° 12	25° 9	27
28	44° 64	45° 2	32° 33	42° 6	22° 45	35° 6	18° 08	25° 5	28
29	44° 22	45° 2	31° 95	42° 5	22° 21	35° 3	18° 06	25° 2	29
30	43° 79	45° 2	31° 57	42° 3	21° 98	35° 0	18° 04	24° 8	30
31	43° 37	45° 1	31° 20	42° 2	21° 75	34° 7	18° 03	24° 5	31
32	- -	- -	30° 83	42° 0	- -	- -	18° 02	24° 2	32

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Andromedæ.			γ Pegasi. (Algenib)			β Hydri.		
	R. A.		Dec. North.	R. A.		Dec. North.	R. A.		Dec. South.
	^h °	^m '	[°] 28 21	^h °	^m '	[°] 14 26	^h °	^m '	[°] 77 59
Jan. 1	33° 77'	0.14	47° 6'	25° 97'	0.12	59° 3'	42° 63'	0.90	78° 2'
11	33° 63'	0.15	46° 5'	25° 85'	0.12	58° 3'	41° 73'	0.84	77° 2'
21	33° 48'	0.13	45° 3'	25° 73'	0.11	57° 3'	40° 89'	0.76	75° 5'
31	33° 35'	0.10	43° 8'	25° 62'	0.09	56° 2'	40° 13'	0.65	73° 3'
Feb. 10	33° 25'	0.08	42° 2'	25° 53'	0.07	55° 1'	39° 48'	0.52	70° 6'
20	33° 17'	0.05	40° 5'	25° 46'	0.05	54° 1'	38° 96'	0.38	67° 5'
Mar. 1	33° 12'	0.03	38° 8'	25° 41'	0.01	53° 1'	38° 58'	0.24	64° 1'
11	33° 10'	0.03	37° 2'	25° 40'	0.03	52° 2'	38° 34'	0.08	60° 5'
21	33° 13'	0.08	35° 6'	25° 50'	0.12	51° 1'	38° 26'	0.09	56° 9'
31	33° 21'	0.12	34° 4'	25° 62'	0.15	51° 0'	38° 35'	0.26	52° 8'
Apr. 10	33° 33'	0.17	33° 5'	25° 77'	0.19	51° 2'	38° 61'	0.41	49° 1'
20	33° 50'	0.23	33° 0'	25° 96'	0.23	51° 8'	39° 02'	0.56	45° 4'
30	33° 72'	0.25	32° 8'	26° 19'	0.27	52° 6'	39° 58'	0.70	41° 9'
May 10	33° 97'	0.29	33° 0'	26° 46'	0.29	53° 7'	40° 28'	0.83	38° 7'
20	34° 26'	0.31	33° 6'	26° 75'	0.30	55° 1'	41° 11'	0.93	35° 8'
30	34° 57'	0.32	34° 6'	27° 05'	0.31	56° 8'	42° 04'	1.02	33° 4'
June 9	34° 89'	0.34	36° 0'	27° 36'	0.31	58° 7'	43° 06'	1.09	31° 4'
19	35° 23'	0.33	37° 7'	27° 67'	0.31	60° 6'	44° 15'	1.12	29° 8'
29	35° 56'	0.32	39° 6'	27° 98'	0.29	62° 7'	45° 27'	1.13	28° 9'
July 9	35° 88'	0.31	41° 7'	28° 27'	0.27	64° 9'	46° 40'	1.10	28° 5'
19	36° 19'	0.28	44° 0'	28° 54'	0.24	67° 0'	47° 50'	1.05	28° 6'
29	36° 47'	0.25	46° 5'	28° 78'	0.20	69° 0'	48° 55'	0.96	29° 4'
Aug. 8	36° 72'	0.21	48° 9'	28° 98'	0.17	70° 9'	49° 51'	0.84	30° 7'
18	36° 93'	0.17	51° 4'	29° 15'	0.13	72° 7'	50° 35'	0.70	32° 5'
28	37° 10'	0.13	53° 8'	29° 28'	0.10	74° 3'	51° 05'	0.53	34° 7'
Sept. 7	37° 23'	0.09	56° 1'	29° 38'	0.05	75° 7'	51° 58'	0.35	37° 3'
17	37° 32'	0.05	58° 3'	29° 43'	0.02	76° 9'	51° 93'	0.17	40° 2'
27	37° 37'	0.01	60° 2'	29° 45'	0.01	77° 9'	52° 10'	0.03	43° 3'
Oct. 7	37° 38'	0.02	62° 0'	29° 44'	0.04	78° 6'	52° 07'	0.22	46° 4'
17	37° 36'	0.05	63° 5'	29° 40'	0.07	79° 1'	51° 85'	0.39	49° 4'
27	37° 31'	0.08	64° 7'	29° 33'	0.08	79° 4'	51° 46'	0.56	52° 3'
Nov. 6	37° 23'	0.11	65° 7'	29° 25'	0.10	79° 5'	50° 90'	0.70	54° 9'
16	37° 12'	0.12	66° 4'	29° 15'	0.12	79° 3'	50° 20'	0.80	57° 0'
26	37° 00'	0.13	66° 8'	29° 03'	0.12	79° 0'	49° 40'	0.88	58° 7'
Dec. 6	36° 87'	0.15	66° 8'	28° 91'	0.12	78° 5'	48° 52'	0.93	59° 8'
16	36° 72'	0.15	66° 5'	28° 79'	0.13	77° 8'	47° 59'	0.93	60° 3'
26	36° 57'	0.15	65° 9'	28° 66'	0.13	76° 9'	46° 66'	0.91	60° 1'
36	36° 42'	0.15	65° 1'	28° 66'	0.13	76° 9'	45° 75'	0.91	59° 4'

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	12 Ceti.		α Cassiopeæ.		β Ceti.	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. South.
	^h ° 23	^m 4 40	^h ° 33	^m 55 48	^h ° 36	^m 18 42
Jan. 1	17 ^s .64 ^s	79 ^s .9 ^s	2 ^s .38 ^s	59 ^s .0 ^s	57 ^s .05 ^s	54 ^s .4 ^s
11	17 ^s .52 ^s	80 ^s .5 ^s	2 ^s .09 ^s	58 ^s .5 ^s	56 ^s .92 ^s	54 ^s .9 ^s
21	17 ^s .40 ^s	81 ^s .1 ^s	1 ^s .80 ^s	57 ^s .4 ^s	56 ^s .79 ^s	55 ^s .1 ^s
31	17 ^s .29 ^s	81 ^s .6 ^s	1 ^s .52 ^s	55 ^s .9 ^s	56 ^s .66 ^s	55 ^s .1 ^s
Feb. 10	17 ^s .20 ^s	81 ^s .9 ^s	1 ^s .27 ^s	54 ^s .0 ^s	56 ^s .55 ^s	54 ^s .9 ^s
20	17 ^s .12 ^s	82 ^s .0 ^s	1 ^s .05 ^s	51 ^s .8 ^s	56 ^s .46 ^s	54 ^s .3 ^s
Mar. 1	17 ^s .07 ^s	81 ^s .9 ^s	0 ^s .88 ^s	49 ^s .4 ^s	56 ^s .39 ^s	53 ^s .5 ^s
11	17 ^s .04 ^s	81 ^s .6 ^s	0 ^s .77 ^s	46 ^s .8 ^s	56 ^s .35 ^s	52 ^s .4 ^s
21	17 ^s .06 ^s	81 ^s .1 ^s	0 ^s .74 ^s	44 ^s .2 ^s	56 ^s .34 ^s	51 ^s .0 ^s
31	17 ^s .11 ^s	80 ^s .3 ^s	0 ^s .78 ^s	41 ^s .4 ^s	56 ^s .38 ^s	49 ^s .3 ^s
Apr. 10	17 ^s .20 ^s	79 ^s .2 ^s	0 ^s .89 ^s	39 ^s .1 ^s	56 ^s .46 ^s	47 ^s .5 ^s
20	17 ^s .34 ^s	78 ^s .0 ^s	1 ^s .09 ^s	37 ^s .1 ^s	56 ^s .58 ^s	45 ^s .5 ^s
30	17 ^s .51 ^s	76 ^s .5 ^s	1 ^s .35 ^s	35 ^s .5 ^s	56 ^s .74 ^s	43 ^s .3 ^s
May 10	17 ^s .72 ^s	74 ^s .8 ^s	1 ^s .67 ^s	34 ^s .3 ^s	56 ^s .94 ^s	41 ^s .0 ^s
20	17 ^s .96 ^s	73 ^s .0 ^s	2 ^s .05 ^s	33 ^s .6 ^s	57 ^s .18 ^s	38 ^s .7 ^s
30	18 ^s .23 ^s	71 ^s .0 ^s	2 ^s .47 ^s	33 ^s .4 ^s	57 ^s .45 ^s	36 ^s .4 ^s
June 9	18 ^s .52 ^s	69 ^s .0 ^s	2 ^s .92 ^s	33 ^s .6 ^s	57 ^s .75 ^s	34 ^s .1 ^s
19	18 ^s .83 ^s	67 ^s .0 ^s	3 ^s .39 ^s	34 ^s .4 ^s	58 ^s .06 ^s	31 ^s .9 ^s
29	19 ^s .14 ^s	65 ^s .0 ^s	3 ^s .86 ^s	35 ^s .6 ^s	58 ^s .38 ^s	29 ^s .9 ^s
July 9	19 ^s .44 ^s	63 ^s .0 ^s	4 ^s .32 ^s	37 ^s .3 ^s	58 ^s .69 ^s	28 ^s .1 ^s
19	19 ^s .73 ^s	61 ^s .3 ^s	4 ^s .76 ^s	39 ^s .4 ^s	59 ^s .00 ^s	26 ^s .5 ^s
29	20 ^s .01 ^s	59 ^s .7 ^s	5 ^s .17 ^s	41 ^s .8 ^s	59 ^s .30 ^s	25 ^s .3 ^s
Aug. 8	20 ^s .26 ^s	58 ^s .3 ^s	5 ^s .55 ^s	44 ^s .5 ^s	59 ^s .57 ^s	24 ^s .4 ^s
18	20 ^s .48 ^s	57 ^s .2 ^s	5 ^s .88 ^s	47 ^s .4 ^s	59 ^s .80 ^s	23 ^s .9 ^s
28	20 ^s .66 ^s	56 ^s .3 ^s	6 ^s .16 ^s	50 ^s .5 ^s	60 ^s .00 ^s	23 ^s .7 ^s
Sept. 7	20 ^s .81 ^s	55 ^s .7 ^s	6 ^s .38 ^s	53 ^s .6 ^s	60 ^s .17 ^s	23 ^s .8 ^s
17	20 ^s .92 ^s	55 ^s .4 ^s	6 ^s .55 ^s	56 ^s .8 ^s	60 ^s .30 ^s	24 ^s .3 ^s
27	20 ^s .99 ^s	55 ^s .4 ^s	6 ^s .65 ^s	60 ^s .0 ^s	60 ^s .39 ^s	25 ^s .1 ^s
Oct. 7	21 ^s .03 ^s	55 ^s .6 ^s	6 ^s .70 ^s	63 ^s .1 ^s	60 ^s .44 ^s	26 ^s .1 ^s
17	21 ^s .03 ^s	56 ^s .0 ^s	6 ^s .70 ^s	66 ^s .0 ^s	60 ^s .46 ^s	27 ^s .3 ^s
27	21 ^s .01 ^s	56 ^s .6 ^s	6 ^s .64 ^s	68 ^s .7 ^s	60 ^s .44 ^s	28 ^s .7 ^s
Nov. 6	20 ^s .96 ^s	57 ^s .3 ^s	6 ^s .53 ^s	71 ^s .2 ^s	60 ^s .39 ^s	30 ^s .1 ^s
16	20 ^s .89 ^s	58 ^s .0 ^s	6 ^s .38 ^s	73 ^s .3 ^s	60 ^s .32 ^s	31 ^s .5 ^s
26	20 ^s .80 ^s	58 ^s .9 ^s	6 ^s .19 ^s	75 ^s .0 ^s	60 ^s .23 ^s	32 ^s .8 ^s
Dec. 6	20 ^s .70 ^s	59 ^s .7 ^s	5 ^s .96 ^s	76 ^s .2 ^s	60 ^s .12 ^s	34 ^s .0 ^s
16	20 ^s .58 ^s	60 ^s .6 ^s	5 ^s .69 ^s	76 ^s .9 ^s	60 ^s .00 ^s	35 ^s .0 ^s
26	20 ^s .46 ^s	61 ^s .3 ^s	5 ^s .41 ^s	77 ^s .2 ^s	59 ^s .87 ^s	35 ^s .9 ^s
36	20 ^s .35 ^s	62 ^s .1 ^s	5 ^s .12 ^s	76 ^s .9 ^s	59 ^s .74 ^s	36 ^s .5 ^s

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	ε Piscium.		θ Ceti.		η Piscium.	
	R. A.	Dec. North.	R. A.	Dec. South.	R. A.	Dec. North.
	^h 0 56	[°] 7 10	^h 1 17	[°] 8 51	^h 1 24	[°] 14 39
Jan. 1	5 ^s .49 0 ^m .12	40 [°] .1 0 ['] .8	25 ^s .26 0 ^m .14	65 [°] .5 0 ['] .8	25 ^s .35 0 ^m .13	49 [°] .9 0 ['] .6
11	5 ^s .37 0 ^m .13	39 [°] .3 0 ['] .7	25 ^s .12 0 ^m .13	66 [°] .3 0 ['] .6	25 ^s .22 0 ^m .14	49 [°] .3 0 ['] .8
21	5 ^s .24 0 ^m .13	38 [°] .6 0 ['] .8	24 ^s .99 0 ^m .13	66 [°] .9 0 ['] .4	25 ^s .08 0 ^m .14	48 [°] .5 0 ['] .8
31	5 ^s .11 0 ^m .12	37 [°] .8 0 ['] .7	24 ^s .86 0 ^m .13	67 [°] .3 0 ['] .2	24 ^s .94 0 ^m .14	47 [°] .7 0 ['] .8
Feb. 10	4 ^s .99 0 ^m .10	37 [°] .1 0 ['] .6	24 ^s .73 0 ^m .12	67 [°] .5 0 ['] .1	24 ^s .80 0 ^m .13	46 [°] .9 0 ['] .8
20	4 ^s .89 0 ^m .08	36 [°] .5 0 ['] .5	24 ^s .61 0 ^m .10	67 [°] .4 0 ['] .2	24 ^s .67 0 ^m .11	46 [°] .1 0 ['] .8
Mar. 1	4 ^s .81 0 ^m .06	36 [°] .0 0 ['] .4	24 ^s .51 0 ^m .08	67 [°] .2 0 ['] .5	24 ^s .56 0 ^m .08	45 [°] .3 0 ['] .8
11	4 ^s .75 0 ^m .02	35 [°] .6 0 ['] .2	24 ^s .43 0 ^m .04	66 [°] .7 0 ['] .7	24 ^s .48 0 ^m .05	44 [°] .5 0 ['] .6
21	4 ^s .73 0 ^m .02	35 [°] .4 0 ['] .0	24 ^s .39 0 ^m .01	66 [°] .0 1 ['] .0	24 ^s .43 0 ^m .02	43 [°] .9 0 ['] .4
31	4 ^s .75 0 ^m .06	35 [°] .4 0 ['] .3	24 ^s .38 0 ^m .03	65 [°] .0 1 ['] .2	24 ^s .41 0 ^m .03	43 [°] .5 0 ['] .2
Apr. 10	4 ^s .81 0 ^m .10	35 [°] .7 0 ['] .6	{44.41} 0 ^m .08	{63.81} 1 ['] .5	24 ^s .44 0 ^m .09	43 [°] .3 0 ['] .1
20	4 ^s .91 0 ^m .15	36 [°] .3 0 ['] .8	24 ^s .50 0 ^m .12	62 [°] .2 1 ['] .7	24 ^s .53 0 ^m .12	43 [°] .4 0 ['] .3
30	5 ^s .06 0 ^m .18	37 [°] .1 1 ['] .1	24 ^s .62 0 ^m .16	60 [°] .5 1 ['] .8	24 ^s .65 0 ^m .17	43 [°] .7 0 ['] .6
May 10	5 ^s .24 0 ^m .23	38 [°] .2 1 ['] .3	24 ^s .78 0 ^m .20	58 [°] .7 2 ['] .0	24 ^s .82 0 ^m .21	44 [°] .3 0 ['] .9
20	5 ^s .47 0 ^m .26	39 [°] .5 1 ['] .5	24 ^s .98 0 ^m .24	56 [°] .7 2 ['] .1	25 ^s .03 0 ^m .24	45 [°] .2 1 ['] .1
30	5 ^s .73 0 ^m .28	41 [°] .0 1 ['] .7	25 ^s .22 0 ^m .27	54 [°] .6 2 ['] .2	25 ^s .27 0 ^m .27	46 [°] .3 1 ['] .4
June 9	6 ^s .01 0 ^m .29	42 [°] .7 1 ['] .8	25 ^s .49 0 ^m .29	52 [°] .4 2 ['] .1	25 ^s .54 0 ^m .30	47 [°] .7 1 ['] .5
19	6 ^s .30 0 ^m .31	44 [°] .5 1 ['] .9	25 ^s .78 0 ^m .30	50 [°] .3 2 ['] .1	25 ^s .84 0 ^m .31	49 [°] .2 1 ['] .7
29	6 ^s .61 0 ^m .31	46 [°] .4 1 ['] .9	26 ^s .08 0 ^m .31	48 [°] .2 2 ['] .0	26 ^s .15 0 ^m .31	50 [°] .9 1 ['] .9
July 9	6 ^s .92 0 ^m .30	48 [°] .3 1 ['] .9	26 ^s .39 0 ^m .30	46 [°] .2 1 ['] .8	26 ^s .46 0 ^m .32	52 [°] .8 1 ['] .9
19	7 ^s .22 0 ^m .29	50 [°] .2 2 ['] .0	26 ^s .69 0 ^m .29	44 [°] .4 1 ['] .6	26 ^s .78 0 ^m .30	54 [°] .7 1 ['] .8
29	7 ^s .51 0 ^m .27	52 [°] .2 1 ['] .8	26 ^s .98 0 ^m .28	42 [°] .8 1 ['] .3	27 ^s .08 0 ^m .28	56 [°] .5 1 ['] .9
Aug. 8	7 ^s .78 0 ^m .24	54 [°] .0 1 ['] .6	27 ^s .26 0 ^m .26	41 [°] .5 1 ['] .1	27 ^s .36 0 ^m .26	58 [°] .4 1 ['] .8
18	8 ^s .02 0 ^m .20	55 [°] .6 1 ['] .4	27 ^s .52 0 ^m .23	40 [°] .4 0 ['] .7	27 ^s .62 0 ^m .23	60 [°] .2 1 ['] .6
28	8 ^s .22 0 ^m .18	57 [°] .0 1 ['] .2	27 ^s .75 0 ^m .19	39 [°] .7 0 ['] .4	27 ^s .85 0 ^m .21	61 [°] .8 1 ['] .5
Sept. 7	8 ^s .40 0 ^m .14	58 [°] .2 1 ['] .0	27 ^s .94 0 ^m .16	39 [°] .3 0 ['] .1	28 ^s .06 0 ^m .17	63 [°] .3 1 ['] .4
17	8 ^s .54 0 ^m .11	59 [°] .2 0 ['] .7	28 ^s .10 0 ^m .13	39 [°] .2 0 ['] .2	28 ^s .23 0 ^m .13	64 [°] .7 1 ['] .1
27	8 ^s .65 0 ^m .07	59 [°] .9 0 ['] .5	28 ^s .23 0 ^m .09	39 [°] .4 0 ['] .4	28 ^s .36 0 ^m .11	65 [°] .8 1 ['] .0
Oct. 7	8 ^s .72 0 ^m .04	60 [°] .4 0 ['] .3	28 ^s .32 0 ^m .06	39 [°] .8 0 ['] .7	28 ^s .47 0 ^m .07	66 [°] .8 0 ['] .7
17	8 ^s .76 0 ^m .01	60 [°] .7 0 ['] .1	28 ^s .38 0 ^m .02	40 [°] .5 0 ['] .9	28 ^s .54 0 ^m .04	67 [°] .5 0 ['] .5
27	8 ^s .77 0 ^m .02	60 [°] .8 0 ['] .1	28 ^s .40 0 ^m .00	41 [°] .4 1 ['] .0	28 ^s .58 0 ^m .01	68 [°] .0 0 ['] .4
Nov. 6	8 ^s .75 0 ^m .05	60 [°] .7 0 ['] .2	28 ^s .40 0 ^m .03	42 [°] .4 1 ['] .1	28 ^s .59 0 ^m .02	68 [°] .4 0 ['] .1
16	8 ^s .70 0 ^m .06	60 [°] .5 0 ['] .4	28 ^s .37 0 ^m .06	43 [°] .5 1 ['] .1	28 ^s .57 0 ^m .04	68 [°] .5 0 ['] .0
26	8 ^s .64 0 ^m .08	60 [°] .1 0 ['] .5	28 ^s .31 0 ^m .08	44 [°] .6 1 ['] .1	28 ^s .53 0 ^m .07	68 [°] .5 0 ['] .1
Dec. 6	8 ^s .56 0 ^m .10	59 [°] .6 0 ['] .6	28 ^s .23 0 ^m .09	45 [°] .7 1 ['] .1	28 ^s .46 0 ^m .09	68 [°] .4 0 ['] .3
16	8 ^s .46 0 ^m .12	59 [°] .0 0 ['] .6	28 ^s .14 0 ^m .11	46 [°] .8 0 ['] .9	28 ^s .37 0 ^m .11	68 [°] .1 0 ['] .5
26	8 ^s .34 0 ^m .12	58 [°] .4 0 ['] .7	28 ^s .03 0 ^m .12	47 [°] .7 0 ['] .8	28 ^s .26 0 ^m .12	67 [°] .6 0 ['] .5
36	8 ^s .22 0 ^m .12	57 [°] .7 0 ['] .7	27 ^s .91 0 ^m .12	48 [°] .5 0 ['] .8	28 ^s .14 0 ^m .12	67 [°] .1 0 ['] .5

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Eridani. (Achernar)		γ Piscium.		β Arietis.	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. North.
	h m I 32	° ' 57 54	h m I 34	° ' 4 48	h m I 47	° ' 20 9
Jan. I	46 ^s 99 ^s	51 ["] 8 ["]	33 ^s 77 ^s	61 ["] 1 ["]	21 ^s 30 ^s	40 ["] 7 ["]
II	46 ^s 66 ^s 0 ^s 33	52 ["] 2 ["] 0 ["] 4	33 ^s 65 ^s 0 ^s 12	60 ["] 4 ["] 0 ["] 7	21 ^s 16 ^s 0 ^s 14	40 ["] 2 ["] 0 ["] 5
21	46 ^s 32 ^s 0 ^s 34	52 ["] 0 ["] 2 ["] 0	33 ^s 52 ^s 0 ^s 13	59 ["] 7 ["] 0 ["] 7	21 ^s 02 ^s 0 ^s 14	39 ["] 6 ["] 0 ["] 6
31	45 ^s 99 ^s 0 ^s 33	51 ["] 3 ["] 0 ["] 7	33 ^s 38 ^s 0 ^s 14	59 ["] 1 ["] 0 ["] 6	20 ^s 87 ^s 0 ^s 15	38 ["] 8 ["] 0 ["] 8
	0 ^s 32	1 ["] 3	0 ^s 14	0 ["] 6	0 ^s 16	0 ["] 8
Feb. 10	45 ^s 67 ^s 0 ^s 29	50 ["] 0 ["] 1 ["] 8	33 ^s 24 ^s 0 ^s 13	58 ["] 5 ["] 0 ["] 5	20 ^s 71 ^s 0 ^s 15	38 ["] 0 ["] 0 ["] 9
20	45 ^s 38 ^s 0 ^s 25	48 ["] 2 ["] 2 ["] 2	33 ^s 11 ^s 0 ^s 11	58 ["] 0 ["] 4 ["] 4	20 ^s 56 ^s 0 ^s 13	37 ["] 1 ["] 0 ["] 9
Mar. I	45 ^s 13 ^s 0 ^s 21	46 ["] 0 ["] 2 ["] 6	33 ^s 00 ^s 0 ^s 09	57 ["] 6 ["] 0 ["] 2	20 ^s 43 ^s 0 ^s 10	36 ["] 2 ["] 0 ["] 9
11	44 ^s 92 ^s 0 ^s 16	43 ["] 4 ["] 2 ["] 9	32 ^s 91 ^s 0 ^s 06	57 ["] 4 ["] 0 ["] 0	20 ^s 33 ^s 0 ^s 08	35 ["] 3 ["] 0 ["] 9
	0 ^s 10	3 ["] 6	0 ^s 02	0 ["] 2	0 ^s 04	34 ["] 4 ["] 0 ["] 7
21	44 ^s 76 ^s 0 ^s 10	40 ["] 5 ["] 3 ["] 2	32 ^s 85 ^s 0 ^s 02	57 ["] 6 ["] 0 ["] 3	20 ^s 25 ^s 0 ^s 01	33 ["] 7 ["] 0 ["] 5
31	44 ^s 66 ^s 0 ^s 03	37 ["] 3 ["] 3 ["] 5	32 ^s 83 ^s 0 ^s 02	57 ["] 9 ["] 0 ["] 7	20 ^s 21 ^s 0 ^s 06	33 ["] 2 ["] 0 ["] 3
Apr. 10	44 ^s 63 ^s 0 ^s 05	33 ["] 8 ["] 3 ["] 8	32 ^s 85 ^s 0 ^s 07	58 ["] 6 ["] 0 ["] 9	20 ^s 22 ^s 0 ^s 11	32 ["] 9 ["] 0 ["] 1
20	44 ^s 68 ^s 0 ^s 11	30 ["] 0 ["] 3 ["] 6	32 ^s 92 ^s 0 ^s 11	58 ["] 6 ["] 0 ["] 9	20 ^s 28 ^s 0 ^s 11	32 ["] 9 ["] 0 ["] 1
	0 ^s 19	2 ["] 8	0 ^s 15	1 ["] 1	0 ^s 15	32 ["] 8 ["] 0 ["] 2
30	44 ^s 79 ^s 0 ^s 19	26 ["] 4 ["] 3 ["] 6	33 ^s 03 ^s 0 ^s 15	59 ["] 5 ["] 1 ["] 4	20 ^s 39 ^s 0 ^s 19	33 ["] 0 ["] 0 ["] 5
May 10	44 ^s 98 ^s 0 ^s 25	22 ["] 8 ["] 3 ["] 4	33 ^s 18 ^s 0 ^s 20	60 ["] 6 ["] 1 ["] 5	20 ^s 54 ^s 0 ^s 24	33 ["] 5 ["] 0 ["] 8
20	45 ^s 23 ^s 0 ^s 31	19 ["] 4 ["] 3 ["] 2	33 ^s 38 ^s 0 ^s 23	62 ["] 0 ["] 1 ["] 7	20 ^s 73 ^s 0 ^s 27	34 ["] 3 ["] 1 ["] 0
30	45 ^s 54 ^s 0 ^s 37	16 ["] 2 ["] 3 ["] 0	33 ^s 61 ^s 0 ^s 26	63 ["] 5 ["] 1 ["] 9	20 ^s 97 ^s 0 ^s 31	34 ["] 3 ["] 1 ["] 0
	0 ^s 42	2 ["] 6	0 ^s 28	1 ["] 8	0 ^s 29	35 ["] 3 ["] 1 ["] 3
June 9	45 ^s 91 ^s 0 ^s 45	13 ["] 2 ["] 2 ["] 2	33 ^s 87 ^s 0 ^s 30	65 ["] 2 ["] 1 ["] 9	21 ^s 24 ^s 0 ^s 31	36 ["] 6 ["] 1 ["] 5
19	46 ^s 33 ^s 0 ^s 47	10 ["] 6 ["] 1 ["] 7	34 ^s 15 ^s 0 ^s 30	67 ["] 0 ["] 1 ["] 9	21 ^s 53 ^s 0 ^s 32	38 ["] 1 ["] 1 ["] 6
29	46 ^s 78 ^s 0 ^s 48	8 ["] 4 ["] 1 ["] 2	34 ^s 45 ^s 0 ^s 31	68 ["] 9 ["] 1 ["] 9	21 ^s 84 ^s 0 ^s 32	39 ["] 7 ["] 1 ["] 7
July 9	47 ^s 25 ^s 0 ^s 48	6 ["] 7 ["] 0 ["] 7	34 ^s 75 ^s 0 ^s 30	70 ["] 8 ["] 1 ["] 8	22 ^s 16 ^s 0 ^s 31	41 ["] 4 ["] 1 ["] 8
	0 ^s 48	1 ["] 2	0 ^s 31	1 ["] 9	0 ^s 32	43 ["] 2 ["] 1 ["] 9
19	47 ^s 73 ^s 0 ^s 46	5 ["] 5 ["] 0 ["] 5	35 ^s 06 ^s 0 ^s 26	72 ["] 7 ["] 1 ["] 5	22 ^s 48 ^s 0 ^s 28	45 ["] 1 ["] 1 ["] 8
29	48 ^s 21 ^s 0 ^s 43	4 ["] 8 ["] 1 ["] 0	35 ^s 36 ^s 0 ^s 23	74 ["] 5 ["] 1 ["] 3	22 ^s 79 ^s 0 ^s 26	46 ["] 9 ["] 1 ["] 8
Aug. 8	48 ^s 67 ^s 0 ^s 39	4 ["] 7 ["] 1 ["] 0	35 ^s 64 ^s 0 ^s 23	76 ["] 1 ["] 0 ["] 3	23 ^s 09 ^s 0 ^s 22	48 ["] 7 ["] 1 ["] 6
18	49 ^s 10 ^s 0 ^s 33	5 ["] 2 ["] 1 ["] 6	35 ^s 90 ^s 0 ^s 21	77 ["] 6 ["] 0 ["] 8	23 ^s 37 ^s 0 ^s 20	50 ["] 3 ["] 1 ["] 5
	0 ^s 33	1 ["] 0	0 ^s 23	1 ["] 3	0 ^s 26	51 ["] 8 ["] 1 ["] 4
28	49 ^s 49 ^s 0 ^s 33	6 ["] 2 ["] 1 ["] 6	36 ^s 13 ^s 0 ^s 11	78 ["] 9 ["] 0 ["] 3	23 ^s 63 ^s 0 ^s 13	53 ["] 2 ["] 1 ["] 2
Sept. 7	49 ^s 82 ^s 0 ^s 28	7 ["] 8 ["] 2 ["] 7	36 ^s 34 ^s 0 ^s 08	80 ["] 0 ["] 0 ["] 3	23 ^s 85 ^s 0 ^s 10	54 ["] 4 ["] 1 ["] 1
17	50 ^s 10 ^s 0 ^s 21	9 ["] 8 ["] 3 ["] 0	36 ^s 51 ^s 0 ^s 05	80 ["] 8 ["] 0 ["] 1	24 ^s 05 ^s 0 ^s 07	55 ["] 5 ["] 0 ["] 8
27	50 ^s 31 ^s 0 ^s 14	12 ["] 2 ["] 2 ["] 7	36 ^s 65 ^s 0 ^s 02	81 ["] 4 ["] 0 ["] 4	24 ^s 51 ^s 0 ^s 03	56 ["] 3 ["] 0 ["] 7
	0 ^s 14	2 ["] 7	0 ^s 11	0 ["] 3	0 ^s 13	57 ["] 0 ["] 0 ["] 5
Oct. 7	50 ^s 45 ^s 0 ^s 08	14 ["] 9 ["] 2 ["] 9	36 ^s 76 ^s 0 ^s 08	81 ["] 7 ["] 0 ["] 1	24 ^s 34 ^s 0 ^s 10	57 ["] 5 ["] 0 ["] 3
17	50 ^s 53 ^s 0 ^s 00	17 ["] 8 ["] 3 ["] 0	36 ^s 84 ^s 0 ^s 05	81 ["] 8 ["] 0 ["] 1	24 ^s 44 ^s 0 ^s 05	57 ["] 8 ["] 0 ["] 1
27	50 ^s 53 ^s 0 ^s 07	20 ["] 8 ["] 2 ["] 9	36 ^s 89 ^s 0 ^s 02	81 ["] 7 ["] 0 ["] 2	24 ^s 51 ^s 0 ^s 08	57 ["] 9 ["] 0 ["] 0
Nov. 6	50 ^s 46 ^s 0 ^s 13	23 ["] 7 ["] 2 ["] 8	36 ^s 91 ^s 0 ^s 01	81 ["] 5 ["] 0 ["] 4	24 ^s 54 ^s 0 ^s 00	57 ["] 7 ["] 0 ["] 2
	0 ^s 19	2 ["] 5	0 ^s 03	0 ["] 5	0 ^s 02	57 ["] 8 ["] 0 ["] 1
16	50 ^s 33 ^s 0 ^s 23	29 ["] 0 ["] 2 ["] 2	36 ^s 87 ^s 0 ^s 06	80 ["] 6 ["] 0 ["] 6	24 ^s 52 ^s 0 ^s 08	57 ["] 9 ["] 0 ["] 0
Dec. 6	49 ^s 91 ^s 0 ^s 27	31 ["] 2 ["] 1 ["] 7	36 ^s 81 ^s 0 ^s 08	80 ["] 0 ["] 0 ["] 7	24 ^s 47 ^s 0 ^s 10	57 ["] 7 ["] 0 ["] 4
16	49 ^s 64 ^s 0 ^s 30	32 ["] 9 ["] 1 ["] 2	36 ^s 73 ^s 0 ^s 10	79 ["] 3 ["] 0 ["] 6	24 ^s 39 ^s 0 ^s 12	57 ["] 3 ["] 0 ["] 3
	0 ^s 30	1 ["] 2	0 ^s 10	0 ["] 6	0 ^s 10	57 ["] 3 ["] 0 ["] 3
26	49 ^s 34 ^s 0 ^s 33	34 ["] 1 ["] 0 ["] 7	36 ^s 63 ^s 0 ^s 12	78 ["] 7 ["] 0 ["] 7	24 ^s 29 ^s 0 ^s 12	57 ["] 7 ["] 0 ["] 4
36	49 ^s 01 ^s 0 ^s 33	34 ["] 8 ["] 0 ["] 7	36 ^s 51 ^s 0 ^s 12	78 ["] 0 ["] 0 ["] 7	24 ^s 17 ^s 0 ^s 12	57 ["] 3 ["] 0 ["] 3

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Arietis.			67 Ceti.			ξ Ceti.		
	R. A.	Dec. North.		R. A.	Dec. South.		R. A.	Dec. North.	
	^h I	^m 59	^o 22	^h 2	^m 10	^o 7	^h 2	^m 21	^o 7
Jan. 1	44 ^s 51 ^s	11 ^s 8 ^s	24 ^s 06 ^s	65 ^s 7 ^s	8 ^s 84 ^s	53 ^s 8 ^s			
11	44 ^s 38 ^s 0 ^s 13	11 ^s 4 ^s 0 ^s 4	23 ^s 94 ^s 0 ^s 12	66 ^s 6 ^s 0 ^s 9	8 ^s 72 ^s 0 ^s 12	53 ^s 2 ^s 0 ^s 6			
21	44 ^s 23 ^s 0 ^s 15	10 ^s 9 ^s 0 ^s 5	23 ^s 80 ^s 0 ^s 14	67 ^s 3 ^s 0 ^s 6	8 ^s 59 ^s 0 ^s 13	52 ^s 5 ^s 0 ^s 6			
31	44 ^s 07 ^s 0 ^s 16	10 ^s 2 ^s 0 ^s 7	23 ^s 66 ^s 0 ^s 14	67 ^s 9 ^s 0 ^s 6	8 ^s 45 ^s 0 ^s 14	51 ^s 9 ^s 0 ^s 6			
Feb. 10	43 ^s 91 ^s 0 ^s 16	9 ^s 4 ^s 0 ^s 9	23 ^s 51 ^s 0 ^s 15	68 ^s 2 ^s 0 ^s 3	8 ^s 30 ^s 0 ^s 15	51 ^s 3 ^s 0 ^s 5			
20	43 ^s 75 ^s 0 ^s 14	8 ^s 5 ^s 1 ^s 0	23 ^s 36 ^s 0 ^s 15	68 ^s 3 ^s 0 ^s 0	8 ^s 15 ^s 0 ^s 15	50 ^s 8 ^s 0 ^s 5			
Mar. 1	43 ^s 61 ^s 0 ^s 12	7 ^s 5 ^s 1 ^s 0	23 ^s 22 ^s 0 ^s 11	68 ^s 3 ^s 0 ^s 3	8 ^s 01 ^s 0 ^s 13	50 ^s 4 ^s 0 ^s 3			
11	43 ^s 49 ^s 0 ^s 09	6 ^s 5 ^s 0 ^s 9	23 ^s 11 ^s 0 ^s 09	68 ^s 0 ^s 0 ^s 6	7 ^s 88 ^s 0 ^s 10	50 ^s 1 ^s 0 ^s 2			
21	43 ^s 40 ^s 0 ^s 05	5 ^s 6 ^s 0 ^s 8	23 ^s 02 ^s 0 ^s 06	67 ^s 4 ^s 0 ^s 8	7 ^s 78 ^s 0 ^s 06	49 ^s 9 ^s 0 ^s 0			
31	43 ^s 35 ^s 0 ^s 01	4 ^s 8 ^s 0 ^s 7	22 ^s 96 ^s 0 ^s 02	66 ^s 6 ^s 1 ^s 1	7 ^s 72 ^s 0 ^s 03	49 ^s 9 ^s 0 ^s 2			
Apr. 10	43 ^s 34 ^s 0 ^s 05	4 ^s 1 ^s 0 ^s 5	22 ^s 94 ^s 0 ^s 02	65 ^s 5 ^s 1 ^s 3	7 ^s 69 ^s 0 ^s 02	50 ^s 1 ^s 0 ^s 4			
20	43 ^s 39 ^s 0 ^s 10	3 ^s 6 ^s 0 ^s 3	22 ^s 96 ^s 0 ^s 07	64 ^s 2 ^s 1 ^s 6	7 ^s 71 ^s 0 ^s 07	50 ^s 5 ^s 0 ^s 7			
30	43 ^s 49 ^s 0 ^s 14	3 ^s 3 ^s 0 ^s 0	23 ^s 03 ^s 0 ^s 12	62 ^s 6 ^s 1 ^s 7	7 ^s 78 ^s 0 ^s 11	51 ^s 2 ^s 0 ^s 8			
May 10	43 ^s 63 ^s 0 ^s 19	3 ^s 3 ^s 0 ^s 3	23 ^s 15 ^s 0 ^s 16	60 ^s 9 ^s 1 ^s 9	7 ^s 89 ^s 0 ^s 16	52 ^s 0 ^s 1 ^s 1			
20	43 ^s 82 ^s 0 ^s 23	3 ^s 6 ^s 0 ^s 6	23 ^s 31 ^s 0 ^s 19	59 ^s 0 ^s 2 ^s 0	8 ^s 05 ^s 0 ^s 19	53 ^s 1 ^s 1 ^s 3			
30	44 ^s 05 ^s 0 ^s 26	4 ^s 2 ^s 0 ^s 9	23 ^s 50 ^s 0 ^s 24	57 ^s 0 ^s 2 ^s 0	8 ^s 24 ^s 0 ^s 23	54 ^s 4 ^s 1 ^s 4			
June 9	44 ^s 31 ^s 0 ^s 29	5 ^s 1 ^s 1 ^s 1	23 ^s 74 ^s 0 ^s 26	55 ^s 0 ^s 2 ^s 1	8 ^s 47 ^s 0 ^s 27	55 ^s 8 ^s 1 ^s 6			
19	44 ^s 60 ^s 0 ^s 31	6 ^s 2 ^s 1 ^s 3	24 ^s 00 ^s 0 ^s 28	52 ^s 9 ^s 2 ^s 2	8 ^s 74 ^s 0 ^s 28	57 ^s 4 ^s 1 ^s 7			
29	44 ^s 91 ^s 0 ^s 33	7 ^s 5 ^s 1 ^s 5	24 ^s 28 ^s 0 ^s 30	50 ^s 7 ^s 2 ^s 1	9 ^s 02 ^s 0 ^s 30	59 ^s 1 ^s 1 ^s 8			
July 9	45 ^s 24 ^s 0 ^s 33	9 ^s 0 ^s 1 ^s 6	24 ^s 58 ^s 0 ^s 30	48 ^s 6 ^s 1 ^s 9	9 ^s 32 ^s 0 ^s 30	60 ^s 9 ^s 1 ^s 7			
19	45 ^s 57 ^s 0 ^s 32	10 ^s 6 ^s 1 ^s 8	24 ^s 88 ^s 0 ^s 30	46 ^s 7 ^s 1 ^s 6	9 ^s 62 ^s 0 ^s 30	62 ^s 6 ^s 1 ^s 7			
29	45 ^s 89 ^s 0 ^s 30	12 ^s 4 ^s 1 ^s 8	25 ^s 18 ^s 0 ^s 29	45 ^s 1 ^s 1 ^s 5	9 ^s 92 ^s 0 ^s 30	64 ^s 3 ^s 1 ^s 6			
Aug. 8	46 ^s 19 ^s 0 ^s 29	14 ^s 2 ^s 1 ^s 8	25 ^s 47 ^s 0 ^s 28	43 ^s 6 ^s 1 ^s 2	10 ^s 22 ^s 0 ^s 28	65 ^s 9 ^s 1 ^s 5			
18	46 ^s 48 ^s 0 ^s 27	16 ^s 0 ^s 1 ^s 8	25 ^s 75 ^s 0 ^s 26	42 ^s 4 ^s 0 ^s 9	10 ^s 50 ^s 0 ^s 27	67 ^s 4 ^s 1 ^s 3			
28	46 ^s 75 ^s 0 ^s 24	17 ^s 8 ^s 1 ^s 7	26 ^s 01 ^s 0 ^s 23	41 ^s 5 ^s 0 ^s 6	10 ^s 77 ^s 0 ^s 24	68 ^s 7 ^s 1 ^s 1			
Sept. 7	46 ^s 99 ^s 0 ^s 21	19 ^s 5 ^s 1 ^s 6	26 ^s 24 ^s 0 ^s 20	40 ^s 9 ^s 0 ^s 2	11 ^s 01 ^s 0 ^s 21	69 ^s 8 ^s 0 ^s 9			
17	47 ^s 20 ^s 0 ^s 18	21 ^s 1 ^s 1 ^s 4	26 ^s 44 ^s 0 ^s 17	40 ^s 7 ^s 0 ^s 1	11 ^s 22 ^s 0 ^s 18	70 ^s 7 ^s 0 ^s 7			
27	47 ^s 38 ^s 0 ^s 14	22 ^s 5 ^s 1 ^s 3	26 ^s 61 ^s 0 ^s 15	40 ^s 8 ^s 0 ^s 3	11 ^s 40 ^s 0 ^s 16	71 ^s 4 ^s 0 ^s 5			
Oct. 7	47 ^s 52 ^s 0 ^s 12	23 ^s 8 ^s 1 ^s 2	26 ^s 76 ^s 0 ^s 11	41 ^s 1 ^s 0 ^s 7	11 ^s 56 ^s 0 ^s 13	71 ^s 9 ^s 0 ^s 2			
17	47 ^s 64 ^s 0 ^s 08	25 ^s 0 ^s 1 ^s 0	26 ^s 87 ^s 0 ^s 08	41 ^s 8 ^s 0 ^s 8	11 ^s 69 ^s 0 ^s 09	72 ^s 1 ^s 0 ^s 0			
27	47 ^s 72 ^s 0 ^s 05	26 ^s 0 ^s 0 ^s 8	26 ^s 95 ^s 0 ^s 05	42 ^s 6 ^s 1 ^s 0	11 ^s 78 ^s 0 ^s 07	72 ^s 1 ^s 0 ^s 1			
Nov. 6	47 ^s 77 ^s 0 ^s 02	26 ^s 8 ^s 0 ^s 7	27 ^s 00 ^s 0 ^s 02	43 ^s 6 ^s 1 ^s 1	11 ^s 85 ^s 0 ^s 04	72 ^s 0 ^s 0 ^s 2			
16	47 ^s 79 ^s 0 ^s 02	27 ^s 5 ^s 0 ^s 5	27 ^s 02 ^s 0 ^s 01	44 ^s 7 ^s 1 ^s 2	11 ^s 89 ^s 0 ^s 00	71 ^s 8 ^s 0 ^s 4			
26	47 ^s 77 ^s 0 ^s 04	28 ^s 0 ^s 0 ^s 2	27 ^s 01 ^s 0 ^s 04	45 ^s 9 ^s 1 ^s 2	11 ^s 89 ^s 0 ^s 02	71 ^s 4 ^s 0 ^s 5			
Dec. 6	47 ^s 73 ^s 0 ^s 07	28 ^s 2 ^s 0 ^s 1	26 ^s 97 ^s 0 ^s 06	47 ^s 1 ^s 1 ^s 1	11 ^s 87 ^s 0 ^s 05	70 ^s 9 ^s 0 ^s 5			
16	47 ^s 66 ^s 0 ^s 10	28 ^s 3 ^s 0 ^s 1	26 ^s 91 ^s 0 ^s 09	48 ^s 2 ^s 1 ^s 0	11 ^s 82 ^s 0 ^s 07	70 ^s 4 ^s 0 ^s 6			
26	47 ^s 56 ^s 0 ^s 12	28 ^s 2 ^s 0 ^s 2	26 ^s 82 ^s 0 ^s 11	49 ^s 2 ^s 1 ^s 0	11 ^s 75 ^s 0 ^s 10	69 ^s 8 ^s 0 ^s 6			
36	47 ^s 44 ^s 0 ^s 12	28 ^s 0 ^s 0 ^s 2	26 ^s 71 ^s 0 ^s 11	50 ^s 2 ^s 1 ^s 0	11 ^s 65 ^s 0 ^s 10	69 ^s 2 ^s 0 ^s 6			

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	γ Ceti.			α Ceti.			δ Arietis.		
	R. A.	Dec. North.		R. A.	Dec. North.		R. A.	Dec. North.	
	h m	° '		h m	° '		h m	° '	
	2 36	2 40		2 55	3 33		3 4	19 13	
Jan. 1	28 ^s .02 ^s	30 ^s .8 ^s		23 ^s .20 ^s	62 ^s .8 ^s		5 ^s .65 ^s	27 ^s .6 ^s	
11	27 ^s .92 ^s	30 ^s .1 ^s		23 ^s .10 ^s	62 ^s .0 ^s		5 ^s .55 ^s	27 ^s .3 ^s	
21	27 ^s .79 ^s	29 ^s .4 ^s		22 ^s .98 ^s	61 ^s .4 ^s		5 ^s .42 ^s	27 ^s .0 ^s	
31	27 ^s .64 ^s	28 ^s .8 ^s		22 ^s .83 ^s	60 ^s .8 ^s		5 ^s .27 ^s	26 ^s .6 ^s	
Feb. 10									
	27 ^s .48 ^s	28 ^s .3 ^s		22 ^s .68 ^s	60 ^s .3 ^s		5 ^s .11 ^s	26 ^s .1 ^s	
20	27 ^s .33 ^s	27 ^s .9 ^s		22 ^s .52 ^s	59 ^s .9 ^s		4 ^s .93 ^s	25 ^s .6 ^s	
Mar. 1	27 ^s .18 ^s	27 ^s .6 ^s		22 ^s .36 ^s	59 ^s .6 ^s		4 ^s .76 ^s	25 ^s .0 ^s	
11	27 ^s .05 ^s	27 ^s .6 ^s		22 ^s .21 ^s	59 ^s .5 ^s		4 ^s .61 ^s	24 ^s .4 ^s	
21									
	26 ^s .94 ^s	27 ^s .7 ^s		22 ^s .09 ^s	59 ^s .5 ^s		4 ^s .47 ^s	23 ^s .8 ^s	
31	26 ^s .86 ^s	27 ^s .9 ^s		21 ^s .99 ^s	59 ^s .7 ^s		4 ^s .36 ^s	23 ^s .3 ^s	
Apr. 10	26 ^s .82 ^s	28 ^s .3 ^s		21 ^s .93 ^s	60 ^s .1 ^s		4 ^s .30 ^s	22 ^s .9 ^s	
20	26 ^s .82 ^s	29 ^s .0 ^s		21 ^s .92 ^s	60 ^s .7 ^s		4 ^s .27 ^s	22 ^s .6 ^s	
30									
	26 ^s .86 ^s	29 ^s .9 ^s		21 ^s .95 ^s	61 ^s .5 ^s		4 ^s .30 ^s	22 ^s .5 ^s	
May 10	26 ^s .96 ^s	31 ^s .1 ^s		22 ^s .03 ^s	62 ^s .6 ^s		4 ^s .38 ^s	22 ^s .5 ^s	
20	27 ^s .10 ^s	32 ^s .4 ^s		22 ^s .15 ^s	63 ^s .9 ^s		4 ^s .51 ^s	22 ^s .8 ^s	
30	27 ^s .28 ^s	33 ^s .9 ^s		22 ^s .32 ^s	65 ^s .3 ^s		4 ^s .68 ^s	23 ^s .4 ^s	
June 9									
	27 ^s .50 ^s	35 ^s .6 ^s		22 ^s .52 ^s	66 ^s .8 ^s		4 ^s .89 ^s	24 ^s .1 ^s	
19	27 ^s .75 ^s	37 ^s .4 ^s		22 ^s .76 ^s	68 ^s .5 ^s		5 ^s .14 ^s	25 ^s .0 ^s	
29	28 ^s .02 ^s	39 ^s .2 ^s		23 ^s .02 ^s	70 ^s .2 ^s		5 ^s .41 ^s	26 ^s .1 ^s	
July 9	28 ^s .31 ^s	41 ^s .0 ^s		23 ^s .30 ^s	72 ^s .0 ^s		5 ^s .70 ^s	27 ^s .3 ^s	
19									
	28 ^s .61 ^s	42 ^s .8 ^s		23 ^s .59 ^s	73 ^s .7 ^s		6 ^s .01 ^s	28 ^s .7 ^s	
29	28 ^s .91 ^s	44 ^s .4 ^s		23 ^s .89 ^s	75 ^s .4 ^s		6 ^s .33 ^s	30 ^s .1 ^s	
Aug. 8	29 ^s .20 ^s	46 ^s .0 ^s		24 ^s .19 ^s	76 ^s .9 ^s		6 ^s .64 ^s	31 ^s .6 ^s	
18	29 ^s .48 ^s	47 ^s .4 ^s		24 ^s .48 ^s	78 ^s .3 ^s		6 ^s .95 ^s	33 ^s .0 ^s	
28									
	29 ^s .75 ^s	48 ^s .5 ^s		24 ^s .75 ^s	79 ^s .4 ^s		7 ^s .24 ^s	34 ^s .4 ^s	
Sept. 7	30 ^s .00 ^s	49 ^s .4 ^s		25 ^s .01 ^s	80 ^s .4 ^s		7 ^s .52 ^s	35 ^s .6 ^s	
17	30 ^s .22 ^s	50 ^s .1 ^s		25 ^s .24 ^s	81 ^s .1 ^s		7 ^s .77 ^s	36 ^s .8 ^s	
27	30 ^s .42 ^s	50 ^s .5 ^s		25 ^s .45 ^s	81 ^s .4 ^s		8 ^s .00 ^s	37 ^s .9 ^s	
Oct. 7									
	30 ^s .58 ^s	50 ^s .7 ^s		25 ^s .64 ^s	81 ^s .6 ^s		8 ^s .21 ^s	38 ^s .8 ^s	
17	30 ^s .72 ^s	50 ^s .6 ^s		25 ^s .79 ^s	81 ^s .6 ^s		8 ^s .38 ^s	39 ^s .6 ^s	
27	30 ^s .83 ^s	50 ^s .3 ^s		25 ^s .92 ^s	81 ^s .3 ^s		8 ^s .53 ^s	40 ^s .2 ^s	
Nov. 6	30 ^s .91 ^s	49 ^s .8 ^s		26 ^s .02 ^s	80 ^s .8 ^s		8 ^s .65 ^s	40 ^s .7 ^s	
16									
	30 ^s .96 ^s	49 ^s .2 ^s		26 ^s .09 ^s	80 ^s .2 ^s		8 ^s .74 ^s	41 ^s .0 ^s	
26	30 ^s .98 ^s	48 ^s .5 ^s		26 ^s .13 ^s	79 ^s .5 ^s		8 ^s .79 ^s	41 ^s .3 ^s	
Dec. 6	30 ^s .97 ^s	47 ^s .7 ^s		26 ^s .13 ^s	78 ^s .8 ^s		8 ^s .81 ^s	41 ^s .4 ^s	
16	30 ^s .93 ^s	46 ^s .9 ^s		26 ^s .11 ^s	78 ^s .0 ^s		8 ^s .79 ^s	41 ^s .5 ^s	
26									
	30 ^s .86 ^s	46 ^s .1 ^s		26 ^s .05 ^s	77 ^s .3 ^s		8 ^s .74 ^s	41 ^s .4 ^s	
36	30 ^s .76 ^s	45 ^s .4 ^s		25 ^s .97 ^s	76 ^s .5 ^s		8 ^s .66 ^s	41 ^s .2 ^s	

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Persei.			η Tauri.			γ Eridani.		
	R. A.	Dec. North.		R. A.	Dec. North.		R. A.	Dec. South.	
	h m	° '		h m	° '		h m	° '	
	3 14	49 23		3 39	23 41		3 51	13 52	
Jan. 1	55° 95' 0.16	21° 2' 0.9		39° 21' 0.07	35° 9' 0.0		52° 84' 0.09	83° 7' 1.4	
11	55° 79' 0.21	22° 1' 0.6		39° 14' 0.12	35° 9' 0.1		52° 75' 0.12	85° 1' 1.2	
21	55° 58' 0.24	22° 7' 0.2		39° 02' 0.15	35° 8' 0.2		52° 63' 0.14	86° 3' 0.9	
31	55° 34' 0.26	22° 9' 0.1		38° 87' 0.17	35° 6' 0.2		52° 49' 0.16	87° 2' 0.7	
Feb. 10	55° 08' 0.28	22° 8' 0.5		38° 70' 0.18	35° 4' 0.4		52° 33' 0.18	87° 9' 0.3	
20	54° 80' 0.27	22° 3' 0.9		38° 52' 0.19	35° 0' 0.5		52° 15' 0.19	88° 2' 0.1	
Mar. 1	54° 53' 0.25	21° 4' 1.2		38° 33' 0.18	34° 5' 0.6		51° 96' 0.18	88° 3' 0.3	
11	54° 28' 0.23	20° 2' 1.5		38° 15' 0.16	33° 9' 0.6		51° 78' 0.17	88° 0' 0.5	
21	54° 05' 0.18	18° 7' 1.6		37° 99' 0.14	33° 3' 0.6		51° 61' 0.15	87° 5' 0.8	
31	53° 87' 0.12	17° 1' 1.8		37° 85' 0.10	32° 7' 0.6		51° 46' 0.11	86° 7' 1.1	
Apr. 10	53° 75' 0.06	15° 3' 1.8		37° 79' 0.06	32° 1' 0.5		51° 35' 0.08	85° 6' 1.4	
20	53° 69' 0.01	13° 5' 1.7		37° 69' 0.01	31° 6' 0.3		51° 27' 0.04	84° 2' 1.6	
30	53° 70' 0.08	11° 8' 1.7		37° 68' 0.04	31° 3' 0.2		51° 23' 0.01	82° 6' 1.9	
May 10	53° 78' 0.16	10° 1' 1.6		37° 72' 0.10	31° 1' 0.1		51° 24' 0.05	80° 7' 2.0	
20	53° 94' 0.22	8° 5' 1.2		37° 82' 0.14	31° 0' 0.1		51° 20' 0.10	78° 3' 2.2	
30	54° 16' 0.27	7° 3' 0.9		37° 96' 0.19	31° 1' 0.3		51° 40' 0.15	76° 3' 2.3	
June 9	54° 43' 0.32	6° 4' 0.6		38° 15' 0.23	31° 4' 0.5		51° 55' 0.19	74° 0' 2.3	
19	54° 75' 0.36	5° 8' 0.3		38° 38' 0.26	31° 9' 0.7		51° 74' 0.22	71° 7' 2.3	
29	55° 11' 0.40	5° 5' 0.0		38° 64' 0.28	32° 6' 0.9		51° 96' 0.24	69° 4' 2.3	
July 9	55° 51' 0.42	5° 5' 0.4		38° 92' 0.30	33° 5' 1.0		52° 20' 0.27	67° 1' 2.1	
19	55° 93' 0.42	5° 9' 0.7		39° 22' 0.32	34° 5' 1.1		52° 47' 0.29	65° 0' 1.8	
29	56° 35' 0.43	6° 6' 1.0		39° 54' 0.32	35° 6' 1.2		52° 76' 0.29	63° 2' 1.7	
Aug. 8	56° 78' 0.42	7° 6' 1.2		39° 86' 0.32	36° 8' 1.1		53° 05' 0.29	61° 5' 1.3	
18	57° 20' 0.41	8° 8' 1.5		40° 18' 0.31	37° 9' 1.2		53° 34' 0.29	60° 2' 0.9	
28	57° 61' 0.39	10° 3' 1.7		40° 49' 0.30	39° 1' 1.2		53° 63' 0.28	59° 3' 0.6	
Sept. 7	58° 00' 0.36	12° 0' 1.9		40° 79' 0.28	40° 3' 1.1		53° 91' 0.26	58° 7' 0.1	
17	58° 36' 0.34	13° 9' 2.0		41° 07' 0.27	41° 4' 1.0		54° 17' 0.25	58° 6' 0.2	
27	58° 70' 0.30	15° 9' 2.1		41° 34' 0.24	42° 4' 1.0		54° 42' 0.23	58° 8' 0.6	
Oct. 7	59° 00' 0.26	18° 0' 2.1		41° 58' 0.21	43° 4' 0.8		54° 65' 0.20	59° 4' 1.0	
17	59° 26' 0.22	20° 1' 2.2		41° 79' 0.19	44° 2' 0.8		54° 85' 0.18	60° 4' 1.3	
27	59° 48' 0.17	22° 3' 2.2		41° 98' 0.16	45° 0' 0.6		55° 03' 0.14	61° 7' 1.5	
Nov. 6	59° 65' 0.13	24° 5' 2.1		42° 14' 0.13	45° 6' 0.6		55° 17' 0.12	63° 2' 1.7	
16	59° 78' 0.08	26° 6' 2.0		42° 27' 0.09	46° 2' 0.4		55° 29' 0.08	64° 9' 1.8	
26	59° 86' 0.02	28° 6' 1.9		42° 36' 0.06	46° 6' 0.4		55° 37' 0.04	66° 7' 1.8	
Dec. 6	59° 88' 0.04	30° 5' 1.7		42° 42' 0.02	47° 0' 0.3		55° 41' 0.01	68° 5' 1.8	
16	59° 84' 0.08	32° 2' 1.4		42° 44' 0.02	47° 3' 0.2		55° 42' 0.02	70° 3' 1.7	
26	59° 76' 0.14	33° 6' 1.2		42° 42' 0.06	47° 5' 0.1		55° 40' 0.07	72° 0' 1.5	
36	59° 62' 0.14	34° 8' 1.2		42° 36' 0.06	47° 6' 0.1		55° 33' 0.07	73° 5' 1.5	

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	♌ Eridani.				♉ Tauri.				♉ Tauri. (Aldebaran)			
	R. A.		Dec. South.		R. A.		Dec. North.		R. A.		Dec. North.	
	h	m	°	'	h	m	°	'	h	m	°	'
	4	5	7	10	4	20	18	52	4	28	16	14
Jan. 1	26 ⁵ .04	0 ⁸ .07	73 ⁵ .6	1 ³	55 ⁵ .48	0 ⁸ .04	59 ⁰ .0	0 ¹	21 ⁵ .76	0 ⁸ .04	21 ² .2	0 ³
11	25 ⁵ .97	0 ¹⁰ .10	74 ⁵ .9	1 ¹	55 ⁵ .44	0 ⁹ .09	58 ⁵ .9	0 ¹	21 ⁵ .72	0 ⁸ .08	20 ⁵ .9	0 ²
21	25 ⁵ .87	0 ¹³ .13	76 ⁵ .0	0 ⁸	55 ⁵ .35	0 ¹² .12	58 ⁵ .8	0 ²	21 ⁵ .64	0 ¹² .12	20 ⁵ .7	0 ³
31	25 ⁵ .74	0 ¹⁵ .15	76 ⁵ .8	0 ⁶	55 ⁵ .23	0 ¹⁵ .15	58 ⁵ .6	0 ²	21 ⁵ .52	0 ¹⁵ .15	20 ⁵ .4	0 ²
Feb. 10	25 ⁵ .59	0 ¹⁷ .17	77 ⁵ .4	0 ⁴	55 ⁵ .08	0 ¹⁷ .17	58 ⁵ .4	0 ³	21 ⁵ .37	0 ¹⁷ .17	20 ⁵ .2	0 ³
20	25 ⁵ .42	0 ¹⁹ .19	77 ⁵ .8	0 ²	54 ⁵ .91	0 ¹⁹ .19	58 ⁵ .1	0 ³	21 ⁵ .20	0 ¹⁸ .18	19 ⁵ .9	0 ²
Mar. 1	25 ⁵ .23	0 ¹⁸ .18	78 ⁵ .0	0 ⁰	54 ⁵ .72	0 ¹⁹ .19	57 ⁵ .9	0 ³	21 ⁵ .02	0 ¹⁹ .19	19 ⁵ .7	0 ³
11	25 ⁵ .05	0 ¹⁷ .17	78 ⁵ .0	0 ³	54 ⁵ .53	0 ¹⁸ .18	57 ⁵ .6	0 ⁴	20 ⁵ .83	0 ¹⁷ .17	19 ⁵ .4	0 ²
21	24 ⁵ .88	0 ¹⁴ .14	77 ⁵ .7	0 ⁶	54 ⁵ .35	0 ¹⁵ .15	57 ⁵ .2	0 ³	20 ⁵ .66	0 ¹⁶ .16	19 ⁵ .2	0 ²
31	24 ⁵ .74	0 ¹² .12	77 ⁵ .1	0 ⁸	54 ⁵ .20	0 ¹³ .13	56 ⁵ .9	0 ²	20 ⁵ .50	0 ¹³ .13	19 ⁵ .0	0 ²
Apr. 10	24 ⁵ .62	0 ⁰⁹ .09	76 ⁵ .3	1 ⁰	54 ⁵ .07	0 ⁰⁹ .09	56 ⁵ .7	0 ²	20 ⁵ .37	0 ¹⁰ .10	18 ⁵ .8	0 ¹
20	24 ⁵ .53	0 ⁰⁴ .04	75 ⁵ .3	1 ³	53 ⁵ .98	0 ⁰⁵ .05	56 ⁵ .5	0 ¹	20 ⁵ .27	0 ⁰⁵ .05	18 ⁵ .7	0 ¹
30	24 ⁵ .49	0 ⁰⁰ .00	74 ⁵ .0	1 ⁵	53 ⁵ .93	0 ⁰⁰ .00	56 ⁵ .4	0 ⁰	20 ⁵ .22	0 ⁰¹ .01	18 ⁵ .8	0 ¹
May 10	24 ⁵ .49	0 ⁰⁵ .05	72 ⁵ .5	1 ⁶	53 ⁵ .93	0 ⁰⁵ .05	56 ⁵ .4	0 ¹	20 ⁵ .21	0 ⁰⁴ .04	18 ⁵ .9	0 ³
20	24 ⁵ .54	0 ¹¹ .11	70 ⁵ .9	2 ⁰	53 ⁵ .98	0 ¹⁰ .10	56 ⁵ .5	0 ³	20 ⁵ .25	0 ⁰⁹ .09	19 ⁵ .2	0 ⁵
30	24 ⁵ .65	0 ¹³ .13	68 ⁵ .9	2 ⁰	54 ⁵ .08	0 ¹⁴ .14	56 ⁵ .8	0 ⁵	20 ⁵ .34	0 ¹⁴ .14	19 ⁵ .7	0 ⁶
June 9	24 ⁵ .78	0 ¹⁷ .17	66 ⁵ .9	2 ⁰	54 ⁵ .22	0 ¹⁹ .19	57 ⁵ .3	0 ⁶	20 ⁵ .48	0 ¹⁷ .17	20 ⁵ .3	0 ⁷
19	24 ⁵ .95	0 ²¹ .21	64 ⁵ .9	2 ⁰	54 ⁵ .41	0 ²² .22	57 ⁵ .9	0 ⁷	20 ⁵ .65	0 ²¹ .21	21 ⁵ .0	0 ⁸
29	25 ⁵ .16	0 ²⁴ .24	62 ⁵ .9	2 ⁰	54 ⁵ .63	0 ²⁵ .25	58 ⁵ .6	0 ⁹	20 ⁵ .86	0 ²⁴ .24	21 ⁵ .8	0 ⁹
July 9	25 ⁵ .40	0 ²⁶ .26	60 ⁵ .9	1 ⁹	54 ⁵ .88	0 ²⁸ .28	59 ⁵ .5	0 ⁹	21 ⁵ .10	0 ²⁷ .27	22 ⁵ .7	1 ⁰
19	25 ⁵ .66	0 ²⁸ .28	59 ⁵ .0	1 ⁸	55 ⁵ .16	0 ²⁹ .29	60 ⁵ .4	1 ⁰	21 ⁵ .37	0 ²⁹ .29	23 ⁵ .7	1 ⁰
29	25 ⁵ .94	0 ²⁸ .28	57 ⁵ .2	1 ⁶	55 ⁵ .45	0 ³⁰ .30	61 ⁵ .4	1 ⁰	21 ⁵ .66	0 ²⁹ .29	24 ⁵ .7	1 ¹
Aug. 8	26 ⁵ .22	0 ²⁹ .29	55 ⁵ .6	1 ³	55 ⁵ .75	0 ³⁰ .30	62 ⁵ .4	1 ⁰	21 ⁵ .95	0 ³⁰ .30	25 ⁵ .8	1 ⁰
18	26 ⁵ .51	0 ²⁸ .28	54 ⁵ .3	1 ⁰	56 ⁵ .05	0 ³¹ .31	63 ⁵ .4	0 ⁹	22 ⁵ .25	0 ³⁰ .30	26 ⁵ .8	0 ⁹
28	26 ⁵ .79	0 ²⁸ .28	53 ⁵ .3	0 ⁷	56 ⁵ .36	0 ³⁰ .30	64 ⁵ .3	0 ⁹	22 ⁵ .55	0 ²⁹ .29	27 ⁵ .7	0 ⁸
Sept. 7	27 ⁵ .07	0 ²⁷ .27	52 ⁵ .6	0 ³	56 ⁵ .66	0 ²⁹ .29	65 ⁵ .2	0 ⁷	22 ⁵ .84	0 ²⁹ .29	28 ⁵ .5	0 ⁶
17	27 ⁵ .34	0 ²⁵ .25	52 ⁵ .3	0 ⁰	56 ⁵ .95	0 ²⁸ .28	65 ⁵ .9	0 ⁷	23 ⁵ .13	0 ²⁸ .28	29 ⁵ .1	0 ⁵
27	27 ⁵ .59	0 ²⁴ .24	52 ⁵ .3	0 ⁴	57 ⁵ .23	0 ²⁶ .26	66 ⁵ .6	0 ⁵	23 ⁵ .41	0 ²⁷ .27	29 ⁵ .6	0 ⁴
Oct. 7	27 ⁵ .83	0 ²¹ .21	52 ⁵ .7	0 ⁶	57 ⁵ .49	0 ²⁵ .25	67 ⁵ .1	0 ⁴	23 ⁵ .68	0 ²⁴ .24	30 ⁵ .0	0 ³
17	28 ⁵ .04	0 ¹⁹ .19	53 ⁵ .3	1 ⁰	57 ⁵ .74	0 ²² .22	67 ⁵ .5	0 ³	23 ⁵ .92	0 ²³ .23	30 ⁵ .3	0 ²
27	28 ⁵ .23	0 ¹⁶ .16	54 ⁵ .3	1 ²	57 ⁵ .96	0 ¹⁹ .19	67 ⁵ .8	0 ²	24 ⁵ .15	0 ²⁰ .20	30 ⁵ .5	0 ⁰
Nov. 6	28 ⁵ .39	0 ¹³ .13	55 ⁵ .5	1 ⁴	58 ⁵ .15	0 ¹⁷ .17	68 ⁵ .0	0 ¹	24 ⁵ .35	0 ¹⁶ .16	30 ⁵ .5	0 ¹
16	28 ⁵ .52	0 ¹⁰ .10	56 ⁵ .9	1 ⁴	58 ⁵ .32	0 ¹³ .13	68 ⁵ .1	0 ¹	24 ⁵ .51	0 ¹⁴ .14	30 ⁵ .4	0 ¹
26	28 ⁵ .62	0 ⁰⁶ .06	58 ⁵ .3	1 ⁵	58 ⁵ .45	0 ¹⁰ .10	68 ⁵ .2	0 ⁰	24 ⁵ .65	0 ¹¹ .11	30 ⁵ .3	0 ²
Dec. 6	28 ⁵ .68	0 ⁰³ .03	59 ⁵ .8	1 ⁵	58 ⁵ .55	0 ⁰⁶ .06	68 ⁵ .2	0 ⁰	24 ⁵ .76	0 ⁰⁷ .07	30 ⁵ .1	0 ²
16	28 ⁵ .71	0 ⁰⁰ .00	61 ⁵ .3	1 ⁴	58 ⁵ .61	0 ⁰² .02	68 ⁵ .2	0 ¹	24 ⁵ .83	0 ⁰² .02	29 ⁵ .9	0 ²
26	28 ⁵ .71	0 ⁰⁶ .06	62 ⁵ .7	1 ³	58 ⁵ .63	0 ⁰³ .03	68 ⁵ .1	0 ⁰	24 ⁵ .85	0 ⁰³ .03	29 ⁵ .7	0 ²
36	28 ⁵ .65		64 ⁵ .0		58 ⁵ .60		68 ⁵ .1		24 ⁵ .82		29 ⁵ .5	

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	ι Aurigæ.		ϵ Leporis.		α Aurigæ. (<i>Capella</i>)	
	R. A.	Dec. North.	R. A.	Dec. South.	R. A.	Dec. North.
	^h 4	^m 48	^h 4	^m 59	^h 5	^m 6
	[°] 32	['] 57	[°] 22	['] 32	[°] 45	['] 51
Jan. 1	25 ^s 11 ^s	9 ^o 0 [']	53 ^s 31 ^s	75 ^o 8 [']	57 ^s 91 ^s	31 ^o 5 [']
11	25 ^o 08 ^o 0 ['] 03 [']	9 ^o 7 ['] 0 ['] 7 [']	53 ^o 26 ^o 0 ['] 05 [']	77 ^o 9 ^o 1 ['] 8 [']	57 ^o 88 ^o 0 ['] 03 [']	32 ^o 9 ^o 1 ['] 4 [']
21	25 ^o 00 ^o 0 ['] 12 [']	10 ^o 2 ['] 0 ['] 5 [']	53 ^o 17 ^o 0 ['] 13 [']	79 ^o 7 ^o 1 ['] 5 [']	57 ^o 80 ^o 0 ['] 14 [']	34 ^o 1 ^o 1 ['] 1 [']
31	24 ^o 88 ^o 0 ['] 16 [']	10 ^o 7 ['] 0 ['] 3 [']	53 ^o 04 ^o 0 ['] 16 [']	81 ^o 2 ^o 1 ['] 2 [']	57 ^o 66 ^o 0 ['] 19 [']	35 ^o 2 ^o 0 ['] 8 [']
Feb. 10	24 ^o 72 ^o 0 ['] 20 [']	11 ^o 0 ['] 0 ['] 1 [']	52 ^o 88 ^o 0 ['] 19 [']	82 ^o 4 ^o 0 ['] 7 [']	57 ^o 47 ^o 0 ['] 23 [']	36 ^o 0 ^o 0 ['] 5 [']
20	24 ^o 52 ^o 0 ['] 21 [']	11 ^o 1 ['] 0 ['] 1 [']	52 ^o 69 ^o 0 ['] 20 [']	83 ^o 1 ^o 0 ['] 5 [']	57 ^o 24 ^o 0 ['] 26 [']	36 ^o 5 ^o 0 ['] 2 [']
Mar. 1	24 ^o 31 ^o 0 ['] 21 [']	11 ^o 0 ['] 0 ['] 3 [']	52 ^o 49 ^o 0 ['] 22 [']	83 ^o 6 ^o 0 ['] 1 [']	56 ^o 98 ^o 0 ['] 27 [']	36 ^o 7 ^o 0 ['] 1 [']
11	24 ^o 10 ^o 0 ['] 21 [']	10 ^o 7 ['] 0 ['] 4 [']	52 ^o 27 ^o 0 ['] 21 [']	83 ^o 7 ^o 0 ['] 4 [']	56 ^o 71 ^o 0 ['] 26 [']	36 ^o 6 ^o 0 ['] 3 [']
21	23 ^o 89 ^o 0 ['] 20 [']	10 ^o 3 ['] 0 ['] 5 [']	52 ^o 06 ^o 0 ['] 19 [']	83 ^o 3 ^o 0 ['] 7 [']	56 ^o 45 ^o 0 ['] 25 [']	36 ^o 3 ^o 0 ['] 7 [']
31	23 ^o 69 ^o 0 ['] 16 [']	9 ^o 8 ['] 0 ['] 6 [']	51 ^o 87 ^o 0 ['] 18 [']	82 ^o 6 ^o 0 ['] 1 [']	56 ^o 20 ^o 0 ['] 22 [']	35 ^o 6 ^o 0 ['] 9 [']
Apr. 10	23 ^o 53 ^o 0 ['] 13 [']	9 ^o 2 ['] 0 ['] 7 [']	51 ^o 69 ^o 0 ['] 15 [']	81 ^o 5 ^o 0 ['] 1 [']	55 ^o 98 ^o 0 ['] 17 [']	34 ^o 7 ^o 0 ['] 1 [']
20	23 ^o 40 ^o 0 ['] 08 [']	8 ^o 5 ['] 0 ['] 8 [']	51 ^o 54 ^o 0 ['] 10 [']	80 ^o 1 ^o 0 ['] 1 [']	55 ^o 81 ^o 0 ['] 12 [']	33 ^o 6 ^o 0 ['] 1 [']
30	23 ^o 32 ^o 0 ['] 03 [']	7 ^o 7 ['] 0 ['] 7 [']	51 ^o 44 ^o 0 ['] 06 [']	78 ^o 4 ^o 0 ['] 1 [']	55 ^o 69 ^o 0 ['] 06 [']	32 ^o 4 ^o 0 ['] 1 [']
May 10	23 ^o 29 ^o 0 ['] 02 [']	7 ^o 0 ['] 0 ['] 7 [']	51 ^o 38 ^o 0 ['] 02 [']	76 ^o 5 ^o 0 ['] 2 [']	55 ^o 63 ^o 0 ['] 01 [']	31 ^o 1 ^o 0 ['] 1 [']
20	23 ^o 31 ^o 0 ['] 08 [']	6 ^o 3 ['] 0 ['] 6 [']	51 ^o 36 ^o 0 ['] 02 [']	74 ^o 3 ^o 0 ['] 2 [']	55 ^o 62 ^o 0 ['] 06 [']	29 ^o 7 ^o 0 ['] 1 [']
30	23 ^o 39 ^o 0 ['] 14 [']	5 ^o 7 ['] 0 ['] 5 [']	51 ^o 38 ^o 0 ['] 08 [']	71 ^o 9 ^o 0 ['] 2 [']	55 ^o 68 ^o 0 ['] 14 [']	28 ^o 3 ^o 0 ['] 1 [']
June 9	23 ^o 53 ^o 0 ['] 18 [']	5 ^o 2 ['] 0 ['] 3 [']	51 ^o 46 ^o 0 ['] 12 [']	69 ^o 2 ^o 0 ['] 6 [']	55 ^o 82 ^o 0 ['] 18 [']	27 ^o 0 ^o 0 ['] 1 [']
19	23 ^o 71 ^o 0 ['] 22 [']	4 ^o 9 ['] 0 ['] 2 [']	51 ^o 58 ^o 0 ['] 16 [']	66 ^o 6 ^o 0 ['] 7 [']	56 ^o 00 ^o 0 ['] 23 [']	25 ^o 9 ^o 0 ['] 1 [']
29	23 ^o 93 ^o 0 ['] 25 [']	4 ^o 7 ['] 0 ['] 0 [']	51 ^o 74 ^o 0 ['] 19 [']	63 ^o 9 ^o 0 ['] 2 [']	56 ^o 23 ^o 0 ['] 28 [']	24 ^o 9 ^o 0 ['] 8 [']
July 9	24 ^o 18 ^o 0 ['] 29 [']	4 ^o 7 ['] 0 ['] 1 [']	51 ^o 93 ^o 0 ['] 23 [']	61 ^o 4 ^o 0 ['] 4 [']	56 ^o 51 ^o 0 ['] 32 [']	24 ^o 1 ^o 0 ['] 6 [']
19	24 ^o 47 ^o 0 ['] 31 [']	4 ^o 8 ['] 0 ['] 3 [']	52 ^o 16 ^o 0 ['] 25 [']	59 ^o 0 ^o 0 ['] 2 [']	56 ^o 83 ^o 0 ['] 35 [']	23 ^o 5 ^o 0 ['] 5 [']
29	24 ^o 78 ^o 0 ['] 32 [']	5 ^o 1 ['] 0 ['] 4 [']	52 ^o 41 ^o 0 ['] 27 [']	56 ^o 8 ^o 0 ['] 9 [']	57 ^o 18 ^o 0 ['] 37 [']	23 ^o 0 ^o 0 ['] 2 [']
Aug. 8	25 ^o 10 ^o 0 ['] 34 [']	5 ^o 5 ['] 0 ['] 5 [']	52 ^o 68 ^o 0 ['] 28 [']	54 ^o 9 ^o 0 ['] 1 [']	57 ^o 55 ^o 0 ['] 39 [']	22 ^o 8 ^o 0 ['] 0 [']
18	25 ^o 44 ^o 0 ['] 34 [']	6 ^o 0 ['] 0 ['] 6 [']	52 ^o 96 ^o 0 ['] 29 [']	53 ^o 3 ^o 0 ['] 1 [']	57 ^o 94 ^o 0 ['] 40 [']	22 ^o 8 ^o 0 ['] 2 [']
28	25 ^o 78 ^o 0 ['] 34 [']	6 ^o 6 ['] 0 ['] 6 [']	53 ^o 25 ^o 0 ['] 29 [']	52 ^o 2 ^o 0 ['] 7 [']	58 ^o 34 ^o 0 ['] 40 [']	23 ^o 0 ^o 0 ['] 4 [']
Sept. 7	26 ^o 12 ^o 0 ['] 33 [']	7 ^o 2 ['] 0 ['] 7 [']	53 ^o 54 ^o 0 ['] 29 [']	51 ^o 5 ^o 0 ['] 3 [']	58 ^o 74 ^o 0 ['] 41 [']	23 ^o 4 ^o 0 ['] 5 [']
17	26 ^o 45 ^o 0 ['] 33 [']	7 ^o 9 ['] 0 ['] 8 [']	53 ^o 83 ^o 0 ['] 29 [']	51 ^o 2 ^o 0 ['] 2 [']	59 ^o 15 ^o 0 ['] 40 [']	23 ^o 9 ^o 0 ['] 7 [']
27	26 ^o 78 ^o 0 ['] 31 [']	8 ^o 7 ['] 0 ['] 7 [']	54 ^o 12 ^o 0 ['] 27 [']	51 ^o 4 ^o 0 ['] 8 [']	59 ^o 55 ^o 0 ['] 38 [']	24 ^o 6 ^o 0 ['] 8 [']
Oct. 7	27 ^o 09 ^o 0 ['] 30 [']	9 ^o 4 ['] 0 ['] 8 [']	54 ^o 39 ^o 0 ['] 26 [']	52 ^o 2 ^o 0 ['] 1 [']	59 ^o 93 ^o 0 ['] 36 [']	25 ^o 4 ^o 0 ['] 1 [']
17	27 ^o 39 ^o 0 ['] 27 [']	10 ^o 2 ['] 0 ['] 8 [']	54 ^o 65 ^o 0 ['] 23 [']	53 ^o 3 ^o 0 ['] 6 [']	60 ^o 29 ^o 0 ['] 34 [']	26 ^o 4 ^o 0 ['] 1 [']
27	27 ^o 66 ^o 0 ['] 25 [']	11 ^o 0 ['] 0 ['] 8 [']	54 ^o 88 ^o 0 ['] 21 [']	54 ^o 9 ^o 0 ['] 1 [']	60 ^o 63 ^o 0 ['] 31 [']	27 ^o 5 ^o 0 ['] 1 [']
Nov. 6	27 ^o 91 ^o 0 ['] 22 [']	11 ^o 8 ['] 0 ['] 8 [']	55 ^o 09 ^o 0 ['] 18 [']	56 ^o 8 ^o 0 ['] 2 [']	60 ^o 94 ^o 0 ['] 28 [']	28 ^o 7 ^o 0 ['] 1 [']
16	28 ^o 13 ^o 0 ['] 18 [']	12 ^o 6 ['] 0 ['] 8 [']	55 ^o 27 ^o 0 ['] 14 [']	58 ^o 9 ^o 0 ['] 2 [']	61 ^o 22 ^o 0 ['] 24 [']	30 ^o 1 ^o 0 ['] 1 [']
26	28 ^o 31 ^o 0 ['] 14 [']	13 ^o 4 ['] 0 ['] 8 [']	55 ^o 41 ^o 0 ['] 11 [']	61 ^o 3 ^o 0 ['] 2 [']	61 ^o 46 ^o 0 ['] 19 [']	31 ^o 5 ^o 0 ['] 1 [']
Dec. 6	28 ^o 45 ^o 0 ['] 09 [']	14 ^o 2 ['] 0 ['] 8 [']	55 ^o 52 ^o 0 ['] 07 [']	63 ^o 7 ^o 0 ['] 2 [']	61 ^o 65 ^o 0 ['] 13 [']	33 ^o 0 ^o 0 ['] 6 [']
16	28 ^o 54 ^o 0 ['] 05 [']	15 ^o 0 ['] 0 ['] 8 [']	55 ^o 59 ^o 0 ['] 02 [']	66 ^o 1 ^o 0 ['] 2 [']	61 ^o 78 ^o 0 ['] 07 [']	34 ^o 6 ^o 0 ['] 1 [']
26	28 ^o 59 ^o 0 ['] 00 [']	15 ^o 8 ['] 0 ['] 7 [']	55 ^o 61 ^o 0 ['] 02 [']	68 ^o 4 ^o 0 ['] 2 [']	61 ^o 85 ^o 0 ['] 02 [']	36 ^o 1 ^o 0 ['] 1 [']
36	28 ^o 59 ^o 0 ['] 00 [']	16 ^o 5 ['] 0 ['] 7 [']	55 ^o 59 ^o 0 ['] 02 [']	70 ^o 6 ^o 0 ['] 2 [']	61 ^o 87 ^o 0 ['] 02 [']	37 ^o 5 ^o 0 ['] 1 [']

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	β Orionis. (Rigel)		β Tauri.		δ Orionis.			
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. South.		
	^h 5	^m 8	[°] 8	['] 21	^h 5	^m 25	[°] 0	['] 23
Jan. 1	12 ^s .55 ^s	36 ² .2 ²	57 ⁹⁷ .8	26 ² .2 ²	16 ⁷⁷ .8	69 ⁶ .8		
11	12 ⁵³ .0 ⁰²	37 ⁷ .1 ⁵	57 ⁹⁷ .0 ⁰⁰	26 ⁶ .0 ⁴	16 ⁷⁷ .0 ⁰⁰	70 ⁷ .1 ¹		
21	12 ⁴⁷ .0 ⁰⁶	39 ⁰ .1 ³	57 ⁹² .0 ⁰⁵	27 ⁰ .0 ⁴	16 ⁷³ .0 ⁰⁴	71 ⁸ .1 ¹		
31	12 ³⁷ .0 ¹⁰	40 ¹ .1 ¹	57 ⁸² .0 ¹⁰	27 ⁴ .0 ⁴	16 ⁶⁴ .0 ⁰⁹	72 ⁷ .0 ⁹		
	0 ¹⁴	0 ⁹	0 ¹³	0 ²	0 ¹²	0 ⁷		
Feb. 10	12 ²³ .0 ¹⁶	41 ⁰ .0 ⁷	57 ⁶⁹ .0 ¹⁷	27 ⁶ .0 ²	16 ⁵² .0 ¹⁵	73 ⁴ .0 ⁵		
20	12 ⁰⁷ .0 ¹⁸	41 ⁷ .0 ⁴	57 ⁵² .0 ¹⁹	27 ⁸ .0 ¹	16 ³⁷ .0 ¹⁷	73 ⁹ .0 ³		
Mar. 1	11 ⁸⁹ .0 ¹⁹	42 ¹ .0 ¹	57 ³³ .0 ²¹	27 ⁹ .0 ¹	16 ²⁰ .0 ¹⁹	74 ² .0 ²		
11	11 ⁷⁰ .0 ¹⁹	42 ² .0 ¹	57 ¹² .0 ²¹	27 ⁸ .0 ¹	16 ⁰¹ .0 ¹⁸	74 ⁴ .0 ⁰		
	0 ¹⁹	0 ¹	0 ²¹	0 ¹	0 ¹⁸	0 ⁰		
21	11 ⁵¹ .0 ¹⁸	42 ¹ .0 ⁴	56 ⁹¹ .0 ¹⁹	27 ⁷ .0 ³	15 ⁸³ .0 ¹⁸	74 ⁴ .0 ²		
31	11 ³³ .0 ¹⁶	41 ⁷ .0 ⁷	56 ⁷² .0 ¹⁷	27 ⁴ .0 ⁴	15 ⁶⁵ .0 ¹⁶	74 ² .0 ⁴		
Apr. 10	11 ¹⁷ .0 ¹³	41 ⁰ .0 ⁹	56 ⁵⁵ .0 ¹⁴	27 ⁰ .0 ⁴	15 ⁴⁹ .0 ¹³	73 ⁸ .0 ⁶		
20	11 ⁰⁴ .0 ⁰⁹	40 ¹ .1 ¹	56 ⁴¹ .0 ¹⁰	26 ⁶ .0 ⁵	15 ³⁶ .0 ¹⁰	73 ² .0 ⁷		
	0 ⁰⁹	1 ¹	0 ¹⁰	0 ⁵	0 ¹⁰	0 ⁷		
30	10 ⁹⁵ .0 ⁰⁶	39 ⁰ .1 ³	56 ³¹ .0 ⁰⁶	26 ¹ .0 ⁵	15 ²⁶ .0 ⁰⁷	72 ⁵ .1 ⁰		
May 10	10 ⁸⁹ .0 ⁰¹	37 ⁷ .1 ⁵	56 ²⁵ .0 ⁰⁰	25 ⁶ .0 ⁴	15 ¹⁹ .0 ⁰²	71 ⁵ .1 ¹		
20	10 ⁸⁸ .0 ⁰⁴	36 ² .1 ⁷	56 ²⁵ .0 ⁰⁴	25 ² .0 ⁴	15 ¹⁷ .0 ⁰³	70 ⁴ .1 ²		
30	10 ⁹² .0 ⁰⁸	34 ⁵ .2 ⁰	56 ²⁹ .0 ⁰⁹	24 ⁸ .0 ²	15 ²⁰ .0 ⁰⁶	69 ² .1 ⁴		
	0 ⁰⁸	2 ⁰	0 ⁰⁹	0 ²	0 ⁰⁶	1 ⁴		
June 9	11 ⁰⁰ .0 ¹²	32 ⁵ .1 ⁸	56 ³⁸ .0 ¹⁵	24 ⁶ .0 ²	15 ²⁶ .0 ¹²	67 ⁸ .1 ⁶		
19	11 ¹² .0 ¹⁶	30 ⁷ .2 ⁰	56 ⁵³ .0 ¹⁹	24 ⁴ .0 ¹	15 ³⁸ .0 ¹⁵	66 ² .1 ⁵		
29	11 ²⁸ .0 ¹⁹	28 ⁷ .2 ¹	56 ⁷² .0 ²²	24 ³ .0 ⁰	15 ⁵³ .0 ¹⁸	64 ⁷ .1 ⁶		
July 9	11 ⁴⁷ .0 ²²	26 ⁶ .1 ⁹	56 ⁹⁴ .0 ²⁵	24 ³ .0 ²	15 ⁷¹ .0 ²¹	63 ¹ .1 ⁵		
	0 ²²	1 ⁹	0 ²⁵	0 ²	0 ²¹	1 ⁵		
19	11 ⁶⁹ .0 ²⁴	24 ⁷ .1 ⁷	57 ¹⁹ .0 ²⁸	24 ⁵ .0 ²	15 ⁹² .0 ²³	61 ⁶ .1 ⁵		
29	11 ⁹³ .0 ²⁶	23 ⁰ .1 ⁶	57 ⁴⁷ .0 ³⁰	24 ⁷ .0 ³	16 ¹⁵ .0 ²⁶	60 ¹ .1 ³		
Aug. 8	12 ¹⁹ .0 ²⁷	21 ⁴ .1 ⁴	57 ⁷⁷ .0 ³¹	25 ⁰ .0 ⁴	16 ⁴¹ .0 ²⁶	58 ⁸ .1 ¹		
18	12 ⁴⁶ .0 ²⁸	20 ⁰ .1 ¹	58 ⁰⁸ .0 ³²	25 ⁴ .0 ⁴	16 ⁶⁷ .0 ²⁸	57 ⁷ .0 ⁹		
	0 ²⁸	1 ¹	0 ³²	0 ⁴	0 ²⁸	0 ⁹		
28	12 ⁷⁴ .0 ²⁸	18 ⁹ .0 ⁷	58 ⁴⁰ .0 ³³	25 ⁸ .0 ⁴	16 ⁹⁵ .0 ²⁸	56 ⁸ .0 ⁷		
Sept. 7	13 ⁰² .0 ²⁸	18 ² .0 ³	58 ⁷³ .0 ³²	26 ² .0 ⁴	17 ²³ .0 ²⁸	56 ¹ .0 ⁴		
17	13 ³⁰ .0 ²⁷	17 ⁹ .0 ⁰	59 ⁰⁵ .0 ³²	26 ⁶ .0 ⁴	17 ⁵¹ .0 ²⁸	55 ⁷ .0 ¹		
27	13 ⁵⁷ .0 ²⁷	17 ⁹ .0 ⁴	59 ³⁷ .0 ³²	27 ⁰ .0 ⁴	17 ⁷⁹ .0 ²⁷	55 ⁶ .0 ²		
	0 ²⁷	0 ⁴	0 ³²	0 ⁴	0 ²⁷	0 ²		
Oct. 7	13 ⁸⁴ .0 ²⁵	18 ³ .0 ⁷	59 ⁶⁹ .0 ³⁰	27 ⁴ .0 ⁴	18 ⁰⁶ .0 ²⁶	55 ⁸ .0 ⁵		
17	14 ⁰⁹ .0 ²⁴	19 ⁰ .1 ⁰	59 ⁹⁹ .0 ²⁸	27 ⁸ .0 ⁴	18 ³² .0 ²⁵	56 ³ .0 ⁸		
27	14 ³³ .0 ²¹	20 ⁰ .1 ³	60 ²⁷ .0 ²⁶	28 ² .0 ⁴	18 ⁵⁷ .0 ²³	57 ¹ .1 ⁰		
Nov. 6	14 ⁵⁴ .0 ¹⁹	21 ³ .1 ⁵	60 ⁵³ .0 ²⁴	28 ⁶ .0 ⁴	18 ⁸⁰ .0 ²¹	58 ¹ .1 ²		
	0 ¹⁹	1 ⁵	0 ²⁴	0 ⁴	0 ²¹	1 ²		
16	14 ⁷³ .0 ¹⁶	22 ⁸ .1 ⁷	60 ⁷⁷ .0 ²¹	29 ⁰ .0 ³	19 ⁰¹ .0 ¹⁸	59 ³ .1 ³		
26	14 ⁸⁹ .0 ¹²	24 ⁵ .1 ⁷	60 ⁹⁸ .0 ¹⁷	29 ³ .0 ⁴	19 ¹⁹ .0 ¹⁴	60 ⁶ .1 ³		
Dec. 6	15 ⁰¹ .0 ⁰⁹	26 ² .1 ⁸	61 ¹⁵ .0 ¹²	29 ⁷ .0 ⁵	19 ³³ .0 ¹¹	61 ⁹ .1 ⁴		
16	15 ¹⁰ .0 ⁰⁴	28 ⁰ .1 ⁷	61 ²⁷ .0 ⁰⁸	30 ² .0 ⁵	19 ⁴⁴ .0 ⁰⁷	63 ³ .1 ³		
	0 ⁰⁴	1 ⁷	0 ⁰⁸	0 ⁵	0 ⁰⁷	1 ³		
26	15 ¹⁴ .0 ⁰¹	29 ⁷ .1 ⁶	61 ³⁵ .0 ⁰³	30 ⁷ .0 ⁴	19 ⁵¹ .0 ⁰³	64 ⁶ .1 ²		
36	15 ¹⁵	31 ³ .1 ⁶	61 ³⁸ .0 ⁰³	31 ¹ .0 ⁴	19 ⁵⁴	65 ⁸ .1 ²		

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Leporis.		ϵ Orionis.		α Columbæ.			
	R. A.	Dec. South.	R. A.	Dec. South.	R. A.	Dec. South.		
	^h 5	^m 26	[°] 17	['] 55	^h 5	^m 34	[°] 34	['] 8
Jan. I	55° 58' 0.02	20° 9' 2.1	31° 86' 0.01	31° 0' 1.2	53° 64' 0.04	58° 3' 2.7		
II	55° 56' 0.06	23° 0' 1.8	31° 87' 0.04	32° 2' 1.1	53° 60' 0.09	61° 0' 2.4		
21	55° 50' 0.10	24° 8' 1.5	31° 83' 0.09	33° 3' 0.9	53° 51' 0.13	63° 4' 2.0		
31	55° 40' 0.14	26° 3' 1.2	31° 74' 0.12	34° 2' 0.8	53° 38' 0.18	65° 4' 1.7		
Feb. 10	55° 26' 0.17	27° 5' 0.9	31° 62' 0.15	35° 0' 0.5	53° 20' 0.21	67° 1' 1.3		
20	55° 09' 0.19	28° 4' 0.6	31° 47' 0.17	35° 5' 0.4	52° 99' 0.23	68° 3' 0.8		
Mar. I	54° 90' 0.20	29° 0' 0.2	31° 30' 0.19	35° 9' 0.1	52° 76' 0.25	69° 1' 0.3		
II	54° 70' 0.21	29° 2' 0.1	31° 11' 0.18	36° 0' 0.0	52° 51' 0.25	69° 4' 0.1		
21	54° 49' 0.20	29° 1' 0.5	30° 93' 0.18	36° 0' 0.2	52° 26' 0.24	69° 3' 0.6		
31	54° 29' 0.18	28° 6' 0.7	30° 75' 0.16	35° 8' 0.4	52° 02' 0.22	68° 7' 1.0		
Apr. 10	54° 11' 0.15	27° 9' 1.1	30° 59' 0.14	35° 4' 0.6	51° 80' 0.20	67° 7' 1.4		
20	53° 96' 0.12	26° 8' 1.4	30° 45' 0.10	34° 8' 0.8	51° 60' 0.16	66° 3' 1.8		
30	53° 84' 0.08	25° 4' 1.7	30° 35' 0.06	34° 0' 0.9	51° 44' 0.12	64° 5' 2.1		
May 10	53° 76' 0.04	23° 7' 1.8	30° 29' 0.03	33° 1' 1.1	51° 32' 0.07	62° 4' 2.4		
20	53° 72' 0.01	21° 9' 2.1	30° 26' 0.02	32° 0' 1.3	51° 25' 0.03	60° 0' 2.7		
30	53° 73' 0.05	19° 8' 2.3	30° 28' 0.06	30° 7' 1.4	51° 22' 0.02	57° 3' 2.8		
June 9	53° 78' 0.10	17° 5' 2.5	30° 34' 0.11	29° 3' 1.7	51° 24' 0.07	54° 5' 3.2		
19	53° 88' 0.14	15° 0' 2.4	30° 45' 0.15	27° 6' 1.5	51° 31' 0.12	51° 3' 3.0		
29	54° 02' 0.17	12° 6' 2.4	30° 60' 0.18	26° 1' 1.6	51° 43' 0.16	48° 3' 2.9		
July 9	54° 19' 0.20	10° 2' 2.2	30° 78' 0.20	24° 5' 1.6	51° 59' 0.20	45° 4' 2.8		
19	54° 39' 0.23	8° 0' 2.1	30° 98' 0.23	22° 9' 1.5	51° 79' 0.24	42° 6' 2.6		
29	54° 62' 0.25	5° 9' 1.9	31° 21' 0.25	21° 4' 1.3	52° 03' 0.26	40° 0' 2.2		
Aug. 8	54° 87' 0.26	4° 0' 1.5	31° 46' 0.26	20° 1' 1.2	52° 29' 0.28	37° 8' 1.9		
18	55° 13' 0.28	2° 5' 1.2	31° 72' 0.28	18° 9' 0.9	52° 57' 0.30	35° 9' 1.5		
28	55° 41' 0.29	1° 3' 0.8	32° 00' 0.28	18° 0' 0.7	52° 87' 0.31	34° 4' 0.9		
Sept. 7	55° 70' 0.29	0° 5' 0.4	32° 28' 0.28	17° 3' 0.3	53° 18' 0.31	33° 5' 0.4		
17	55° 99' 0.28	0° 1' 0.0	32° 56' 0.28	17° 0' 0.1	53° 49' 0.32	33° 1' 0.1		
27	56° 27' 0.28	0° 1' 0.5	32° 84' 0.27	16° 9' 0.2	53° 81' 0.31	33° 2' 0.7		
Oct. 7	56° 55' 0.26	0° 6' 1.0	33° 11' 0.27	17° 1' 0.6	54° 12' 0.29	33° 9' 1.3		
17	56° 81' 0.25	1° 6' 1.4	33° 38' 0.25	17° 7' 0.8	54° 41' 0.27	35° 2' 1.7		
27	57° 06' 0.23	3° 0' 1.7	33° 63' 0.23	18° 5' 1.0	54° 68' 0.25	36° 9' 2.2		
Nov. 6	57° 29' 0.20	4° 7' 1.9	33° 86' 0.21	19° 5' 1.2	54° 93' 0.22	39° 1' 2.5		
16	57° 49' 0.17	6° 6' 2.2	34° 07' 0.18	20° 7' 1.4	55° 15' 0.19	41° 6' 2.8		
26	57° 66' 0.14	8° 8' 2.3	34° 25' 0.15	22° 1' 1.4	55° 34' 0.14	44° 4' 2.9		
Dec. 6	57° 80' 0.10	11° 1' 2.2	34° 40' 0.11	23° 5' 1.4	55° 48' 0.09	47° 3' 3.0		
16	57° 90' 0.06	13° 3' 2.3	34° 51' 0.07	24° 9' 1.3	55° 57' 0.04	50° 3' 2.9		
26	57° 96' 0.01	15° 6' 2.1	34° 58' 0.03	26° 2' 1.3	55° 61' 0.00	53° 2' 2.8		
36	57° 97' 0.01	17° 7' 2.1	34° 61' 0.03	27° 5' 1.3	55° 61' 0.00	56° 0' 2.8		

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Orionis.		ν Orionis.		μ Geminorum.			
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. North.		
	^h 5	^m 48	[°] 7	['] 22	^h 6	^m 14	[°] 22	['] 34
Jan. 1	2 ^s .49	36 ^s .4	3 ^s .11	43 ^s .4	59 ^s .49	32 ^s .1		
11	2 ^s .51	35 ^s .6	3 ^s .15	43 ^s .1	59 ^s .55	32 ^s .2		
21	2 ^s .49	34 ^s .9	3 ^s .14	42 ^s .7	59 ^s .56	32 ^s .3		
31	2 ^s .43	34 ^s .3	3 ^s .09	42 ^s .4	59 ^s .52	32 ^s .5		
Feb. 10	2 ^s .32	33 ^s .9	2 ^s .99	42 ^s .3	59 ^s .43	32 ^s .7		
20	2 ^s .18	33 ^s .5	2 ^s .86	42 ^s .2	59 ^s .30	32 ^s .9		
Mar. 1	2 ^s .02	33 ^s .3	2 ^s .70	42 ^s .2	59 ^s .14	33 ^s .1		
11	1 ^s .84	33 ^s .2	2 ^s .51	42 ^s .2	58 ^s .95	33 ^s .3		
21	1 ^s .65	33 ^s .2	2 ^s .32	42 ^s .2	58 ^s .75	33 ^s .5		
31	1 ^s .47	33 ^s .3	2 ^s .14	42 ^s .3	58 ^s .56	33 ^s .5		
Apr. 10	1 ^s .30	33 ^s .5	1 ^s .97	42 ^s .4	58 ^s .38	33 ^s .5		
20	1 ^s .16	33 ^s .8	1 ^s .82	42 ^s .5	58 ^s .21	33 ^s .5		
30	1 ^s .05	34 ^s .2	1 ^s .70	42 ^s .6	58 ^s .08	33 ^s .4		
May 10	0 ^s .98	34 ^s .8	1 ^s .61	42 ^s .9	57 ^s .99	33 ^s .3		
20	0 ^s .94	35 ^s .4	1 ^s .57	43 ^s .2	57 ^s .93	33 ^s .3		
30	0 ^s .95	36 ^s .2	1 ^s .57	43 ^s .5	57 ^s .92	33 ^s .2		
June 9	1 ^s .00	37 ^s .2	1 ^s .62	44 ^s .0	57 ^s .96	33 ^s .2		
19	1 ^s .10	38 ^s .2	1 ^s .70	44 ^s .5	58 ^s .03	33 ^s .2		
29	1 ^s .24	39 ^s .2	1 ^s .84	45 ^s .1	58 ^s .16	33 ^s .3		
July 9	1 ^s .40	40 ^s .3	2 ^s .01	45 ^s .7	58 ^s .32	33 ^s .4		
19	1 ^s .60	41 ^s .4	2 ^s .20	46 ^s .4	58 ^s .52	33 ^s .6		
29	1 ^s .82	42 ^s .4	2 ^s .42	47 ^s .1	58 ^s .74	33 ^s .7		
Aug. 8	2 ^s .07	43 ^s .4	2 ^s .67	47 ^s .7	58 ^s .98	33 ^s .9		
18	2 ^s .33	44 ^s .2	2 ^s .93	48 ^s .2	59 ^s .25	34 ^s .1		
28	2 ^s .60	44 ^s .9	3 ^s .21	48 ^s .6	59 ^s .53	34 ^s .2		
Sept. 7	2 ^s .88	45 ^s .5	3 ^s .50	49 ^s .0	59 ^s .83	34 ^s .3		
17	3 ^s .17	45 ^s .8	3 ^s .79	49 ^s .2	60 ^s .13	34 ^s .3		
27	3 ^s .46	45 ^s .8	4 ^s .09	49 ^s .2	60 ^s .44	34 ^s .2		
Oct. 7	3 ^s .74	45 ^s .7	4 ^s .38	49 ^s .1	60 ^s .76	34 ^s .1		
17	4 ^s .02	45 ^s .4	4 ^s .67	48 ^s .9	61 ^s .07	33 ^s .9		
27	4 ^s .29	44 ^s .8	4 ^s .95	48 ^s .5	61 ^s .37	33 ^s .6		
Nov. 6	4 ^s .54	44 ^s .1	5 ^s .22	48 ^s .0	61 ^s .66	33 ^s .4		
16	4 ^s .77	43 ^s .2	5 ^s .47	47 ^s .5	61 ^s .93	33 ^s .1		
26	4 ^s .97	42 ^s .3	5 ^s .70	46 ^s .9	62 ^s .18	32 ^s .8		
Dec. 6	5 ^s .14	41 ^s .3	5 ^s .89	46 ^s .3	62 ^s .48	32 ^s .6		
16	5 ^s .28	40 ^s .3	6 ^s .04	45 ^s .8	62 ^s .58	32 ^s .5		
26	5 ^s .38	39 ^s .4	6 ^s .15	45 ^s .3	62 ^s .72	32 ^s .5		
36	5 ^s .43	38 ^s .6	6 ^s .22	44 ^s .9	62 ^s .80	32 ^s .5		

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Argus. (Canopus)		γ Geminorum.		51 (Hev.) Cephei.	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. North.
	^h ^m 6 20	[°] ['] 52 37	^h ^m 6 30	[°] ['] 16 30	^h ^m 6 37	[°] ['] 87 14
Jan. I	63 ^s .57 ^s 0 ^s .04	39 ^s .5 ^s 3 ^s .4	6 ^s .15 ^s 0 ^s .07	23 ^s .4 ^s 0 ^s .3	62 ^s .80 ^s 0 ^s .35	19 ^s .6 ^s 3 ^s .2
II	63 ^s .53 0 ^s .11	42 ^s .9 3 ^s .1	6 ^s .22 0 ^s .02	23 ^s .1 0 ^s .2	63 ^s .15 0 ^s .56	22 ^s .8 3 ^s .3
21	63 ^s .42 0 ^s .17	46 ^s .0 2 ^s .8	6 ^s .24 0 ^s .03	22 ^s .9 0 ^s .2	62 ^s .59 1 ^s .44	26 ^s .1 3 ^s .1
31	63 ^s .25 0 ^s .23	48 ^s .8 2 ^s .4	6 ^s .21 0 ^s .07	22 ^s .7 0 ^s .0	61 ^s .15 2 ^s .27	29 ^s .2 2 ^s .7
Feb. 10	63 ^s .02 0 ^s .28	51 ^s .2 2 ^s .0	6 ^s .14 0 ^s .12	22 ^s .7 0 ^s .0	58 ^s .88 2 ^s .99	31 ^s .9 2 ^s .4
20	62 ^s .74 0 ^s .32	53 ^s .2 1 ^s .5	6 ^s .02 0 ^s .15	22 ^s .7 0 ^s .1	55 ^s .89 3 ^s .59	34 ^s .3 1 ^s .9
Mar. I	62 ^s .42 0 ^s .35	54 ^s .7 0 ^s .9	5 ^s .87 0 ^s .17	22 ^s .8 0 ^s .1	52 ^s .30 4 ^s .02	36 ^s .2 1 ^s .4
11	62 ^s .07 0 ^s .37	55 ^s .6 0 ^s .5	5 ^s .70 0 ^s .19	22 ^s .9 0 ^s .1	48 ^s .28 4 ^s .28	37 ^s .6 0 ^s .7
21	61 ^s .70 0 ^s .36	56 ^s .1 0 ^s .1	5 ^s .51 0 ^s .19	23 ^s .0 0 ^s .1	44 ^s .00 4 ^s .37	38 ^s .3 0 ^s .2
31	61 ^s .34 0 ^s .35	56 ^s .0 0 ^s .6	5 ^s .32 0 ^s .18	23 ^s .1 0 ^s .2	39 ^s .63 4 ^s .28	38 ^s .5 0 ^s .4
Apr. 10	60 ^s .99 0 ^s .33	55 ^s .4 1 ^s .1	5 ^s .14 0 ^s .16	23 ^s .3 0 ^s .1	35 ^s .35 4 ^s .03	38 ^s .1 1 ^s .0
20	60 ^s .66 0 ^s .30	54 ^s .3 1 ^s .6	4 ^s .98 0 ^s .13	23 ^s .4 0 ^s .2	31 ^s .32 3 ^s .62	37 ^s .1 1 ^s .5
30	60 ^s .36 0 ^s .25	52 ^s .7 2 ^s .0	4 ^s .85 0 ^s .10	23 ^s .6 0 ^s .2	27 ^s .70 3 ^s .10	35 ^s .6 2 ^s .0
May 10	60 ^s .11 0 ^s .20	50 ^s .7 2 ^s .4	4 ^s .75 0 ^s .07	23 ^s .8 0 ^s .2	24 ^s .60 2 ^s .46	33 ^s .6 2 ^s .4
20	59 ^s .91 0 ^s .15	48 ^s .3 2 ^s .7	4 ^s .68 0 ^s .03	24 ^s .0 0 ^s .3	22 ^s .14 1 ^s .76	31 ^s .2 2 ^s .7
30	59 ^s .76 0 ^s .09	45 ^s .6 3 ^s .0	4 ^s .65 0 ^s .02	24 ^s .3 0 ^s .3	20 ^s .38 1 ^s .01	28 ^s .5 2 ^s .9
June 9	59 ^s .67 0 ^s .03	42 ^s .6 3 ^s .2	4 ^s .67 0 ^s .06	24 ^s .6 0 ^s .3	19 ^s .37 0 ^s .22	25 ^s .6 3 ^s .0
19	59 ^s .64 0 ^s .04	39 ^s .4 3 ^s .6	4 ^s .73 0 ^s .11	24 ^s .9 0 ^s .4	19 ^s .15 0 ^s .56	22 ^s .6 3 ^s .1
29	59 ^s .68 0 ^s .10	35 ^s .8 3 ^s .3	4 ^s .84 0 ^s .14	25 ^s .3 0 ^s .5	{19 ^s .11} 1 ^s .38	{22 ^s .6} 3 ^s .0
July 9	59 ^s .78 0 ^s .16	32 ^s .5 3 ^s .2	4 ^s .98 0 ^s .17	25 ^s .8 0 ^s .4	21 ^s .19 2 ^s .14	16 ^s .2 2 ^s .9
19	59 ^s .94 0 ^s .20	29 ^s .3 3 ^s .1	5 ^s .15 0 ^s .20	26 ^s .2 0 ^s .4	23 ^s .33 2 ^s .81	13 ^s .3 2 ^s .7
29	60 ^s .14 0 ^s .26	26 ^s .2 2 ^s .8	5 ^s .35 0 ^s .23	26 ^s .6 0 ^s .4	26 ^s .14 3 ^s .42	10 ^s .6 2 ^s .5
Aug. 8	60 ^s .40 0 ^s .30	23 ^s .4 2 ^s .5	5 ^s .58 0 ^s .25	27 ^s .0 0 ^s .3	29 ^s .56 3 ^s .96	8 ^s .1 2 ^s .2
18	60 ^s .70 0 ^s .34	20 ^s .9 2 ^s .0	5 ^s .83 0 ^s .26	27 ^s .3 0 ^s .2	33 ^s .52 4 ^s .43	5 ^s .9 1 ^s .8
28	61 ^s .04 0 ^s .37	18 ^s .9 1 ^s .4	6 ^s .09 0 ^s .28	27 ^s .5 0 ^s .2	37 ^s .95 4 ^s .80	4 ^s .1 1 ^s .4
Sept. 7	61 ^s .41 0 ^s .39	17 ^s .5 0 ^s .8	6 ^s .37 0 ^s .29	27 ^s .7 0 ^s .0	42 ^s .75 5 ^s .07	2 ^s .7 1 ^s .0
17	61 ^s .80 0 ^s .40	16 ^s .7 0 ^s .3	6 ^s .66 0 ^s .29	27 ^s .7 0 ^s .2	47 ^s .82 5 ^s .27	1 ^s .7 0 ^s .5
27	62 ^s .20 0 ^s .41	16 ^s .4 0 ^s .4	6 ^s .95 0 ^s .31	27 ^s .5 0 ^s .2	53 ^s .09 5 ^s .34	1 ^s .2 0 ^s .1
Oct. 7	62 ^s .61 0 ^s .40	16 ^s .8 1 ^s .0	7 ^s .26 0 ^s .30	27 ^s .3 0 ^s .4	58 ^s .43 5 ^s .30	1 ^s .1 0 ^s .4
17	63 ^s .01 0 ^s .38	17 ^s .8 1 ^s .7	7 ^s .56 0 ^s .29	26 ^s .9 0 ^s .5	63 ^s .73 5 ^s .15	1 ^s .5 0 ^s .9
27	63 ^s .39 0 ^s .35	19 ^s .5 2 ^s .2	7 ^s .85 0 ^s .29	26 ^s .4 0 ^s .6	68 ^s .88 4 ^s .88	2 ^s .4 1 ^s .3
Nov. 6	63 ^s .74 0 ^s .31	21 ^s .7 2 ^s .7	8 ^s .14 0 ^s .27	25 ^s .8 0 ^s .6	73 ^s .76 4 ^s .48	3 ^s .7 1 ^s .8
16	64 ^s .05 0 ^s .27	24 ^s .4 3 ^s .0	8 ^s .41 0 ^s .25	25 ^s .2 0 ^s .7	78 ^s .24 3 ^s .96	5 ^s .5 2 ^s .3
26	64 ^s .32 0 ^s .21	27 ^s .4 3 ^s .3	8 ^s .66 0 ^s .22	24 ^s .5 0 ^s .6	82 ^s .20 3 ^s .32	7 ^s .8 2 ^s .7
Dec. 6	64 ^s .53 0 ^s .14	30 ^s .7 3 ^s .5	8 ^s .88 0 ^s .19	23 ^s .9 0 ^s .5	85 ^s .52 2 ^s .58	10 ^s .5 2 ^s .9
16	64 ^s .67 0 ^s .07	34 ^s .2 3 ^s .5	9 ^s .07 0 ^s .15	23 ^s .4 0 ^s .5	88 ^s .10 1 ^s .76	13 ^s .4 3 ^s .1
26	64 ^s .74 0 ^s .01	37 ^s .7 3 ^s .4	9 ^s .22 0 ^s .10	22 ^s .9 0 ^s .4	89 ^s .86 0 ^s .87	16 ^s .5 3 ^s .3
36	64 ^s .75	41 ^s .1	9 ^s .32	22 ^s .5	90 ^s .73	19 ^s .8

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Canis Majoris. (Sirius)		ϵ Canis Majoris.		γ Canis Majoris.	
	R. A.	Dec. South.	R. A.	Dec. South.	R. A.	Dec. South.
	^h 6 ^m 39	[°] 16 ['] 32	^h 6 ^m 53	[°] 28 ['] 47	^h 6 ^m 57	[°] 15 ['] 26
Jan. I	^s 21.12 ^s	["] 25.3 ["]	^s 27.66 ^s	["] 49.9 ["]	^s 48.35 ^s	["] 34.3 ["]
II	21.18 0.06	27.6 2.3	27.71 0.05	52.7 2.8	48.43 0.08	36.5 2.2
21	21.18 0.00	29.7 2.1	27.72 0.01	55.4 2.7	48.45 0.02	36.6 2.1
31	21.13 0.05	31.6 1.9	27.67 0.05	57.8 2.4	48.43 0.02	40.5 1.9
	0.08	1.6	0.10	2.1	0.07	1.6
Feb. 10	21.05	33.2	27.57	59.9	48.36	42.1
20	20.92 0.13	34.5 1.3	27.43 0.14	61.7 1.8	48.24 0.12	43.4 1.3
Mar. I	20.76 0.16	35.5 1.0	27.25 0.18	63.1 1.4	48.09 0.15	44.5 1.1
II	20.57 0.19	36.1 0.6	27.04 0.21	64.1 1.0	47.92 0.17	45.2 0.7
	0.20	0.4	0.22	0.6	0.19	0.4
21	20.37 0.20	36.5 0.0	26.82 0.22	64.7 0.1	47.73 0.20	45.6 0.0
31	20.17 0.19	36.5 0.3	26.60 0.23	64.8 0.3	47.53 0.19	45.6 0.2
Apr. 10	19.98 0.18	36.2 0.6	26.37 0.21	64.5 0.6	47.34 0.18	45.4 0.6
20	19.80 0.16	35.6 1.0	26.16 0.18	63.9 1.0	47.16 0.16	44.8 0.8
	0.13	1.2	0.16	1.4	0.13	1.1
May 30	19.64 0.09	34.6 1.4	25.98 0.13	62.9 1.7	47.00 0.10	44.0 1.3
10	19.51 0.05	33.4 1.7	25.82 0.09	61.5 2.0	46.87 0.07	42.9 1.6
20	19.42 0.02	32.0 1.8	25.69 0.04	59.8 2.3	46.77 0.03	41.6 1.8
30	19.37 0.03	30.3 1.8	25.60 0.01	57.8 2.4	46.70 0.01	40.0 1.8
	0.03	2.0	0.01	2.5	0.01	2.0
June 9	19.35 0.03	28.5 2.0	25.56 0.04	55.5 2.6	46.67 0.05	38.2 2.0
19	19.38 0.06	26.5 2.1	25.55 0.04	53.1 2.8	46.68 0.10	36.3 2.2
29	19.44 0.11	24.4 2.3	25.59 0.09	50.5 2.8	46.73 0.10	34.3 2.2
July 9	19.55 0.14	22.1 2.1	25.68 0.12	47.7 2.7	46.83 0.12	32.1 2.0
	0.17	2.0	0.15	2.5	0.15	2.0
19	19.69 0.17	20.0 2.0	25.80 0.15	45.0 2.5	46.95 0.15	30.1 2.0
29	19.86 0.19	18.0 1.9	25.95 0.19	42.5 2.3	47.10 0.18	28.1 1.8
Aug. 8	20.05 0.22	16.1 1.6	26.14 0.22	40.2 2.1	47.28 0.21	26.3 1.6
18	20.27 0.24	14.5 1.3	26.36 0.24	38.1 1.7	47.49 0.23	24.7 1.3
	0.26	0.3	0.30	0.2	0.29	0.2
28	20.51 0.26	13.2 0.9	26.60 0.26	36.4 1.3	47.72 0.25	23.4 1.0
Sept. 7	20.77 0.27	12.3 0.5	26.86 0.28	35.1 0.8	47.97 0.26	22.4 0.6
17	21.04 0.29	11.8 0.1	27.14 0.30	34.3 0.4	48.23 0.28	21.8 0.2
27	21.33 0.28	11.7 0.3	27.44 0.30	33.9 0.2	48.51 0.29	21.6 0.2
	0.28	0.8	0.31	0.8	0.29	0.7
Oct. 7	21.61 0.28	12.0 1.2	27.74 0.30	34.9 1.2	48.80 0.29	22.5 1.2
17	21.90 0.28	14.0 1.5	28.05 0.30	36.1 1.7	49.09 0.28	23.7 1.5
27	22.18 0.26	15.5 1.9	28.35 0.28	37.8 2.1	49.38 0.27	25.2 1.8
Nov. 6	22.46 0.23	17.4 2.2	28.65 0.25	39.9 2.5	49.66 0.25	27.0 2.0
	0.20	2.3	0.22	2.8	0.22	2.2
Dec. 6	23.15 0.17	21.9 2.4	29.18 0.18	42.4 2.8	50.18 0.19	31.2 2.4
16	23.32 0.13	24.3 2.5	29.40 0.13	45.2 2.9	50.40 0.14	33.6 2.4
	0.08	2.4	0.09	2.9	0.10	2.3
26	23.45 0.08	26.8 2.4	29.71 0.09	48.0 2.9	50.59 0.10	36.0 2.3
36	23.53	29.2	29.80	53.8	50.83	38.3

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	δ Geminorum.			α Geminorum. (Castor)			α Canis Minoris. (Procyon)		
	R. A.	Dec. North.		R. A.	Dec. North.		R. A.	Dec. North.	
	^h 7	^m 12	[°] 22 ['] 13	^h 7	^m 26	[°] 32 ['] 10	^h 7	^m 32 ['] 5 ['] 33	
Jan. 1	15 ^s 24 ^s	0 ^s 12 ^s	10 ^s 7 ^s	11 ^s 44 ^s	0 ^s 15 ^s	18 ^s 8 ^s	24 ^s 33 ^s	30 ^s 8 ^s	
11	15 ^s 36 ^s	0 ^s 07 ^s	10 ^s 6 ^s	11 ^s 59 ^s	0 ^s 08 ^s	19 ^s 3 ^s	24 ^s 45 ^s	29 ^s 6 ^s	
21	15 ^s 43 ^s	0 ^s 01 ^s	10 ^s 6 ^s	11 ^s 67 ^s	0 ^s 03 ^s	19 ^s 9 ^s	24 ^s 52 ^s	28 ^s 6 ^s	
31	15 ^s 44 ^s	0 ^s 04 ^s	10 ^s 8 ^s	11 ^s 70 ^s	0 ^s 03 ^s	20 ^s 7 ^s	24 ^s 55 ^s	27 ^s 7 ^s	
Feb. 10	15 ^s 40 ^s	0 ^s 09 ^s	11 ^s 1 ^s	11 ^s 67 ^s	0 ^s 08 ^s	21 ^s 5 ^s	24 ^s 52 ^s	27 ^s 0 ^s	
20	15 ^s 31 ^s	0 ^s 12 ^s	11 ^s 5 ^s	11 ^s 59 ^s	0 ^s 13 ^s	22 ^s 4 ^s	24 ^s 45 ^s	26 ^s 5 ^s	
Mar. 1	15 ^s 19 ^s	0 ^s 16 ^s	11 ^s 8 ^s	11 ^s 46 ^s	0 ^s 17 ^s	23 ^s 2 ^s	24 ^s 34 ^s	26 ^s 2 ^s	
11	15 ^s 03 ^s	0 ^s 18 ^s	12 ^s 2 ^s	11 ^s 29 ^s	0 ^s 19 ^s	24 ^s 0 ^s	24 ^s 20 ^s	26 ^s 0 ^s	
21	14 ^s 8 ^s	0 ^s 19 ^s	12 ^s 6 ^s	11 ^s 10 ^s	0 ^s 20 ^s	24 ^s 6 ^s	24 ^s 04 ^s	25 ^s 9 ^s	
31	14 ^s 66 ^s	0 ^s 19 ^s	12 ^s 9 ^s	10 ^s 90 ^s	0 ^s 21 ^s	25 ^s 1 ^s	23 ^s 86 ^s	26 ^s 0 ^s	
Apr. 10	14 ^s 47 ^s	0 ^s 18 ^s	13 ^s 2 ^s	10 ^s 69 ^s	0 ^s 20 ^s	25 ^s 5 ^s	23 ^s 69 ^s	26 ^s 2 ^s	
20	14 ^s 29 ^s	0 ^s 15 ^s	13 ^s 4 ^s	10 ^s 49 ^s	0 ^s 17 ^s	25 ^s 7 ^s	23 ^s 52 ^s	26 ^s 6 ^s	
30	14 ^s 14 ^s	0 ^s 13 ^s	13 ^s 5 ^s	10 ^s 32 ^s	0 ^s 15 ^s	25 ^s 7 ^s	23 ^s 36 ^s	27 ^s 0 ^s	
May 10	14 ^s 01 ^s	0 ^s 10 ^s	13 ^s 6 ^s	10 ^s 17 ^s	0 ^s 12 ^s	25 ^s 6 ^s	23 ^s 23 ^s	27 ^s 5 ^s	
20	13 ^s 91 ^s	0 ^s 05 ^s	13 ^s 7 ^s	10 ^s 05 ^s	0 ^s 07 ^s	25 ^s 3 ^s	23 ^s 13 ^s	28 ^s 1 ^s	
30	13 ^s 86 ^s	0 ^s 02 ^s	13 ^s 7 ^s	9 ^s 98 ^s	0 ^s 04 ^s	24 ^s 9 ^s	23 ^s 06 ^s	28 ^s 8 ^s	
June 9	13 ^s 84 ^s	0 ^s 02 ^s	13 ^s 7 ^s	9 ^s 94 ^s	0 ^s 01 ^s	24 ^s 4 ^s	23 ^s 02 ^s	29 ^s 5 ^s	
19	13 ^s 86 ^s	0 ^s 06 ^s	13 ^s 6 ^s	9 ^s 95 ^s	0 ^s 05 ^s	23 ^s 9 ^s	23 ^s 02 ^s	30 ^s 3 ^s	
29	13 ^s 92 ^s	0 ^s 11 ^s	13 ^s 6 ^s	10 ^s 00 ^s	0 ^s 09 ^s	23 ^s 3 ^s	23 ^s 06 ^s	31 ^s 1 ^s	
July 9	14 ^s 03 ^s	0 ^s 14 ^s	13 ^s 6 ^s	10 ^s 09 ^s	0 ^s 15 ^s	22 ^s 6 ^s	23 ^s 13 ^s	32 ^s 0 ^s	
19	14 ^s 17 ^s	0 ^s 17 ^s	13 ^s 5 ^s	10 ^s 24 ^s	0 ^s 17 ^s	21 ^s 9 ^s	23 ^s 24 ^s	32 ^s 9 ^s	
29	14 ^s 34 ^s	0 ^s 20 ^s	13 ^s 4 ^s	10 ^s 41 ^s	0 ^s 20 ^s	21 ^s 2 ^s	23 ^s 37 ^s	33 ^s 7 ^s	
Aug. 8	14 ^s 54 ^s	0 ^s 22 ^s	13 ^s 3 ^s	10 ^s 61 ^s	0 ^s 23 ^s	20 ^s 4 ^s	23 ^s 53 ^s	34 ^s 3 ^s	
18	14 ^s 76 ^s	0 ^s 25 ^s	13 ^s 1 ^s	10 ^s 84 ^s	0 ^s 26 ^s	19 ^s 7 ^s	23 ^s 72 ^s	34 ^s 9 ^s	
28	15 ^s 01 ^s	0 ^s 27 ^s	12 ^s 9 ^s	11 ^s 10 ^s	0 ^s 28 ^s	18 ^s 9 ^s	23 ^s 93 ^s	35 ^s 3 ^s	
Sept. 7	15 ^s 28 ^s	0 ^s 28 ^s	12 ^s 6 ^s	11 ^s 38 ^s	0 ^s 30 ^s	18 ^s 2 ^s	24 ^s 16 ^s	35 ^s 5 ^s	
17	15 ^s 56 ^s	0 ^s 30 ^s	12 ^s 3 ^s	11 ^s 68 ^s	0 ^s 32 ^s	17 ^s 4 ^s	24 ^s 41 ^s	35 ^s 5 ^s	
27	15 ^s 86 ^s	0 ^s 30 ^s	11 ^s 8 ^s	12 ^s 00 ^s	0 ^s 33 ^s	16 ^s 7 ^s	24 ^s 67 ^s	35 ^s 3 ^s	
Oct. 7	16 ^s 16 ^s	0 ^s 32 ^s	11 ^s 2 ^s	12 ^s 33 ^s	0 ^s 35 ^s	15 ^s 9 ^s	24 ^s 95 ^s	34 ^s 8 ^s	
17	16 ^s 48 ^s	0 ^s 32 ^s	10 ^s 6 ^s	12 ^s 68 ^s	0 ^s 35 ^s	15 ^s 2 ^s	25 ^s 24 ^s	34 ^s 0 ^s	
27	16 ^s 80 ^s	0 ^s 32 ^s	10 ^s 0 ^s	13 ^s 03 ^s	0 ^s 34 ^s	14 ^s 6 ^s	25 ^s 53 ^s	33 ^s 1 ^s	
Nov. 6	17 ^s 12 ^s	0 ^s 30 ^s	9 ^s 3 ^s	13 ^s 37 ^s	0 ^s 34 ^s	14 ^s 0 ^s	25 ^s 83 ^s	31 ^s 9 ^s	
16	17 ^s 42 ^s	0 ^s 29 ^s	8 ^s 6 ^s	13 ^s 71 ^s	0 ^s 33 ^s	13 ^s 6 ^s	26 ^s 12 ^s	30 ^s 6 ^s	
26	17 ^s 71 ^s	0 ^s 27 ^s	8 ^s 0 ^s	14 ^s 04 ^s	0 ^s 30 ^s	13 ^s 3 ^s	26 ^s 40 ^s	29 ^s 2 ^s	
Dec. 6	17 ^s 98 ^s	0 ^s 24 ^s	7 ^s 5 ^s	14 ^s 34 ^s	0 ^s 27 ^s	13 ^s 2 ^s	26 ^s 66 ^s	27 ^s 7 ^s	
16	18 ^s 22 ^s	0 ^s 19 ^s	7 ^s 1 ^s	14 ^s 61 ^s	0 ^s 22 ^s	13 ^s 2 ^s	26 ^s 88 ^s	26 ^s 3 ^s	
26	18 ^s 41 ^s	0 ^s 15 ^s	6 ^s 8 ^s	14 ^s 83 ^s	0 ^s 17 ^s	13 ^s 4 ^s	27 ^s 07 ^s	24 ^s 9 ^s	
36	18 ^s 56 ^s	0 ^s 12 ^s	6 ^s 6 ^s	15 ^s 00 ^s	0 ^s 15 ^s	13 ^s 8 ^s	27 ^s 22 ^s	23 ^s 6 ^s	

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	β Geminorum. (Pollux)			6 Cancr.			15 Argus.					
	R.A.		Dec. North.	R.A.		Dec. North.	R.A.		Dec. South.			
	^h 7	^m 37	[°] 28	['] 20	^h 7	^m 55	[°] 28	['] 9	^h 8	^m 1	[°] 23	['] 55
Jan. 1	15 ^s .02	21 ^s .1	25 ^s .37	31 ^s .5	56 ^s .60	36 ^s .9						
11	15 ^s .17	21 ^s .3	25 ^s .54	31 ^s .7	56 ^s .73	39 ^s .7						
21	15 ^s .27	21 ^s .7	25 ^s .66	32 ^s .0	56 ^s .81	42 ^s .4						
31	15 ^s .30	22 ^s .3	25 ^s .71	32 ^s .5	56 ^s .84	44 ^s .9						
	0 ^s .01	0 ^s .6	0 ^s .00	0 ^s .6	0 ^s .02	2 ^s .3						
Feb. 10	15 ^s .29	22 ^s .9	25 ^s .71	33 ^s .1	56 ^s .82	47 ^s .2						
20	15 ^s .22	23 ^s .6	25 ^s .67	33 ^s .8	56 ^s .75	49 ^s .2						
Mar. 1	15 ^s .10	24 ^s .3	25 ^s .57	34 ^s .6	56 ^s .64	50 ^s .9						
11	14 ^s .95	25 ^s .0	25 ^s .43	35 ^s .4	56 ^s .49	52 ^s .2						
	0 ^s .18	0 ^s .6	0 ^s .17	0 ^s .7	0 ^s .18	1 ^s .0						
21	14 ^s .77	25 ^s .6	25 ^s .26	36 ^s .1	56 ^s .31	53 ^s .2						
31	14 ^s .58	26 ^s .1	25 ^s .08	36 ^s .7	56 ^s .12	53 ^s .8						
Apr. 10	14 ^s .38	26 ^s .5	24 ^s .89	37 ^s .2	55 ^s .92	54 ^s .1						
20	14 ^s .19	26 ^s .8	24 ^s .70	37 ^s .6	55 ^s .72	54 ^s .0						
	0 ^s .17	0 ^s .2	0 ^s .18	0 ^s .2	0 ^s .18	0 ^s .5						
30	14 ^s .02	27 ^s .0	24 ^s .52	37 ^s .8	55 ^s .54	53 ^s .5						
May 10	13 ^s .87	27 ^s .0	24 ^s .37	37 ^s .9	55 ^s .37	52 ^s .7						
20	13 ^s .75	26 ^s .9	24 ^s .24	37 ^s .9	55 ^s .22	51 ^s .5						
30	13 ^s .67	26 ^s .7	24 ^s .15	37 ^s .8	55 ^s .10	50 ^s .1						
	0 ^s .04	0 ^s .3	0 ^s .05	0 ^s .2	0 ^s .09	1 ^s .7						
June 9	13 ^s .63	26 ^s .4	24 ^s .10	37 ^s .6	55 ^s .01	48 ^s .4						
19	13 ^s .63	26 ^s .1	24 ^s .08	37 ^s .3	54 ^s .96	46 ^s .5						
29	13 ^s .66	25 ^s .7	24 ^s .10	36 ^s .9	54 ^s .94	44 ^s .5						
July 9	13 ^s .74	25 ^s .2	24 ^s .16	36 ^s .4	54 ^s .96	42 ^s .3						
	0 ^s .13	0 ^s .5	0 ^s .11	0 ^s .6	0 ^s .05	2 ^s .4						
19	13 ^s .87	24 ^s .7	24 ^s .27	35 ^s .8	55 ^s .01	39 ^s .9						
29	14 ^s .02	24 ^s .1	24 ^s .40	35 ^s .2	55 ^s .10	37 ^s .5						
Aug. 8	14 ^s .20	23 ^s .6	24 ^s .57	34 ^s .6	55 ^s .22	35 ^s .4						
18	14 ^s .41	23 ^s .0	24 ^s .76	33 ^s .9	55 ^s .37	33 ^s .5						
	0 ^s .24	0 ^s .7	0 ^s .22	0 ^s .8	0 ^s .18	1 ^s .8						
28	14 ^s .65	22 ^s .3	24 ^s .98	33 ^s .1	55 ^s .55	31 ^s .7						
Sept. 7	14 ^s .91	21 ^s .6	25 ^s .23	32 ^s .3	55 ^s .76	30 ^s .3						
17	15 ^s .19	20 ^s .9	25 ^s .50	31 ^s .5	56 ^s .00	29 ^s .3						
27	15 ^s .49	20 ^s .1	25 ^s .80	30 ^s .6	56 ^s .26	28 ^s .7						
	0 ^s .32	0 ^s .8	0 ^s .31	1 ^s .0	0 ^s .28	0 ^s .1						
Oct. 7	15 ^s .81	19 ^s .3	26 ^s .11	29 ^s .6	56 ^s .54	28 ^s .6						
17	16 ^s .14	18 ^s .5	26 ^s .43	28 ^s .6	56 ^s .84	29 ^s .1						
27	16 ^s .48	17 ^s .7	26 ^s .77	27 ^s .7	57 ^s .15	30 ^s .0						
Nov. 6	16 ^s .81	17 ^s .0	27 ^s .11	26 ^s .8	57 ^s .46	31 ^s .3						
	0 ^s .34	0 ^s .7	0 ^s .34	0 ^s .8	0 ^s .31	1 ^s .8						
16	17 ^s .15	16 ^s .3	27 ^s .45	26 ^s .0	57 ^s .77	33 ^s .1						
26	17 ^s .47	15 ^s .8	27 ^s .78	25 ^s .3	58 ^s .06	35 ^s .3						
Dec. 6	17 ^s .76	15 ^s .4	28 ^s .09	24 ^s .7	58 ^s .33	37 ^s .8						
16	18 ^s .03	15 ^s .1	28 ^s .37	24 ^s .4	58 ^s .57	40 ^s .4						
	0 ^s .23	0 ^s .0	0 ^s .24	0 ^s .2	0 ^s .21	2 ^s .7						
26	18 ^s .26	15 ^s .1	28 ^s .61	24 ^s .2	58 ^s .78	43 ^s .1						
36	18 ^s .44	15 ^s .2	28 ^s .81	24 ^s .2	58 ^s .94	45 ^s .9						

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	η Cancri.		ϵ Hydræ.		ι Ursæ Majoris.	
	R.A.	Dec. North.	R.A.	Dec. North.	R.A.	Dec. North.
	^h 8 ^m 25	[°] 20 ['] 52	^h 8 ^m 39	[°] 6 ['] 53	^h 8 ^m 50	[°] 48 ['] 33
Jan. 1	5 ^s 04 ^s	63 ^s 7 ^s	47 ^s 83 ^s	56 ^s 3 ^s	10 ^s 12 ^s	12 ^s 9 ^s
11	5 ^s 23 ^s 0 ^s 19 ^s	63 ^s 3 ^s 0 ^s 4 ^s	48 ^s 02 ^s 0 ^s 19 ^s	55 ^s 0 ^s 1 ^s 3 ^s	10 ^s 40 ^s 0 ^s 28 ^s	14 ^s 0 ^s 1 ^s 1 ^s
21	5 ^s 37 ^s 0 ^s 14 ^s	63 ^s 1 ^s 0 ^s 2 ^s	48 ^s 16 ^s 0 ^s 14 ^s	53 ^s 9 ^s 1 ^s 1 ^s	10 ^s 62 ^s 0 ^s 22 ^s	15 ^s 3 ^s 1 ^s 3 ^s
31	5 ^s 46 ^s 0 ^s 09 ^s	63 ^s 1 ^s 0 ^s 0 ^s	48 ^s 25 ^s 0 ^s 09 ^s	52 ^s 9 ^s 1 ^s 0 ^s	10 ^s 76 ^s 0 ^s 14 ^s	16 ^s 9 ^s 1 ^s 6 ^s
	0 ^s 03 ^s	0 ^s 1 ^s	0 ^s 04 ^s	0 ^s 7 ^s	0 ^s 07 ^s	1 ^s 7 ^s
Feb. 10	5 ^s 49 ^s 0 ^s 02 ^s	63 ^s 2 ^s 0 ^s 3 ^s	48 ^s 29 ^s 0 ^s 01 ^s	52 ^s 2 ^s 0 ^s 5 ^s	10 ^s 83 ^s 0 ^s 00 ^s	18 ^s 6 ^s 1 ^s 9 ^s
20	5 ^s 47 ^s 0 ^s 07 ^s	63 ^s 5 ^s 0 ^s 5 ^s	48 ^s 28 ^s 0 ^s 05 ^s	51 ^s 7 ^s 0 ^s 3 ^s	10 ^s 83 ^s 0 ^s 07 ^s	20 ^s 5 ^s 1 ^s 9 ^s
Mar. 1	5 ^s 40 ^s 0 ^s 10 ^s	64 ^s 0 ^s 0 ^s 6 ^s	48 ^s 23 ^s 0 ^s 09 ^s	51 ^s 4 ^s 0 ^s 1 ^s	10 ^s 76 ^s 0 ^s 13 ^s	22 ^s 4 ^s 1 ^s 8 ^s
11	5 ^s 30 ^s 0 ^s 14 ^s	64 ^s 6 ^s 0 ^s 6 ^s	48 ^s 14 ^s 0 ^s 12 ^s	51 ^s 3 ^s 0 ^s 1 ^s	10 ^s 63 ^s 0 ^s 18 ^s	24 ^s 2 ^s 1 ^s 6 ^s
	0 ^s 16 ^s	0 ^s 5 ^s	0 ^s 15 ^s	0 ^s 2 ^s	0 ^s 22 ^s	1 ^s 5 ^s
21	5 ^s 16 ^s 0 ^s 16 ^s	65 ^s 2 ^s 0 ^s 5 ^s	48 ^s 02 ^s 0 ^s 15 ^s	51 ^s 4 ^s 0 ^s 3 ^s	10 ^s 45 ^s 0 ^s 22 ^s	25 ^s 8 ^s 1 ^s 5 ^s
31	5 ^s 00 ^s 0 ^s 17 ^s	65 ^s 7 ^s 0 ^s 5 ^s	47 ^s 87 ^s 0 ^s 16 ^s	51 ^s 6 ^s 0 ^s 3 ^s	10 ^s 23 ^s 0 ^s 24 ^s	27 ^s 3 ^s 1 ^s 2 ^s
Apr. 10	4 ^s 83 ^s 0 ^s 18 ^s	66 ^s 3 ^s 0 ^s 5 ^s	47 ^s 71 ^s 0 ^s 16 ^s	51 ^s 9 ^s 0 ^s 4 ^s	9 ^s 99 ^s 0 ^s 25 ^s	28 ^s 5 ^s 0 ^s 8 ^s
20	4 ^s 65 ^s 0 ^s 17 ^s	66 ^s 8 ^s 0 ^s 4 ^s	47 ^s 55 ^s 0 ^s 16 ^s	52 ^s 3 ^s 0 ^s 4 ^s	9 ^s 74 ^s 0 ^s 25 ^s	29 ^s 3 ^s 0 ^s 6 ^s
	0 ^s 15 ^s	0 ^s 4 ^s	0 ^s 14 ^s	0 ^s 5 ^s	0 ^s 24 ^s	0 ^s 2 ^s
30	4 ^s 48 ^s 0 ^s 12 ^s	67 ^s 2 ^s 0 ^s 4 ^s	47 ^s 39 ^s 0 ^s 12 ^s	52 ^s 7 ^s 0 ^s 6 ^s	9 ^s 49 ^s 0 ^s 21 ^s	29 ^s 9 ^s 0 ^s 2 ^s
May 10	4 ^s 33 ^s 0 ^s 10 ^s	67 ^s 6 ^s 0 ^s 3 ^s	47 ^s 25 ^s 0 ^s 10 ^s	53 ^s 2 ^s 0 ^s 6 ^s	9 ^s 25 ^s 0 ^s 18 ^s	30 ^s 1 ^s 0 ^s 2 ^s
20	4 ^s 21 ^s 0 ^s 10 ^s	67 ^s 9 ^s 0 ^s 3 ^s	47 ^s 13 ^s 0 ^s 10 ^s	53 ^s 8 ^s 0 ^s 6 ^s	9 ^s 04 ^s 0 ^s 18 ^s	29 ^s 9 ^s 0 ^s 5 ^s
30	4 ^s 11 ^s 0 ^s 07 ^s	68 ^s 1 ^s 0 ^s 1 ^s	47 ^s 03 ^s 0 ^s 08 ^s	54 ^s 4 ^s 0 ^s 6 ^s	8 ^s 86 ^s 0 ^s 15 ^s	29 ^s 4 ^s 0 ^s 8 ^s
	0 ^s 07 ^s	0 ^s 1 ^s	0 ^s 08 ^s	0 ^s 6 ^s	0 ^s 15 ^s	0 ^s 8 ^s
June 9	4 ^s 04 ^s 0 ^s 04 ^s	68 ^s 2 ^s 0 ^s 1 ^s	46 ^s 95 ^s 0 ^s 05 ^s	55 ^s 0 ^s 0 ^s 7 ^s	8 ^s 71 ^s 0 ^s 11 ^s	28 ^s 6 ^s 1 ^s 1 ^s
19	4 ^s 00 ^s 0 ^s 01 ^s	68 ^s 3 ^s 0 ^s 0 ^s	46 ^s 90 ^s 0 ^s 02 ^s	55 ^s 7 ^s 0 ^s 7 ^s	8 ^s 60 ^s 0 ^s 05 ^s	27 ^s 5 ^s 1 ^s 3 ^s
29	3 ^s 99 ^s 0 ^s 03 ^s	68 ^s 3 ^s 0 ^s 1 ^s	46 ^s 88 ^s 0 ^s 01 ^s	56 ^s 4 ^s 0 ^s 6 ^s	8 ^s 55 ^s 0 ^s 01 ^s	26 ^s 2 ^s 1 ^s 5 ^s
July 9	4 ^s 02 ^s 0 ^s 06 ^s	68 ^s 2 ^s 0 ^s 2 ^s	46 ^s 89 ^s 0 ^s 04 ^s	57 ^s 0 ^s 0 ^s 6 ^s	8 ^s 54 ^s 0 ^s 04 ^s	24 ^s 7 ^s 1 ^s 7 ^s
	0 ^s 11 ^s	0 ^s 2 ^s	0 ^s 07 ^s	0 ^s 6 ^s	0 ^s 08 ^s	0 ^s 9 ^s
19	4 ^s 08 ^s 0 ^s 11 ^s	68 ^s 0 ^s 0 ^s 2 ^s	46 ^s 93 ^s 0 ^s 07 ^s	57 ^s 6 ^s 0 ^s 6 ^s	8 ^s 58 ^s 0 ^s 13 ^s	23 ^s 0 ^s 2 ^s 1 ^s
29	4 ^s 19 ^s 0 ^s 12 ^s	67 ^s 8 ^s 0 ^s 3 ^s	47 ^s 00 ^s 0 ^s 11 ^s	58 ^s 2 ^s 0 ^s 5 ^s	8 ^s 66 ^s 0 ^s 18 ^s	21 ^s 1 ^s 2 ^s 1 ^s
Aug. 8	4 ^s 31 ^s 0 ^s 16 ^s	67 ^s 5 ^s 0 ^s 5 ^s	47 ^s 11 ^s 0 ^s 12 ^s	58 ^s 7 ^s 0 ^s 3 ^s	8 ^s 79 ^s 0 ^s 22 ^s	19 ^s 0 ^s 2 ^s 1 ^s
18	4 ^s 47 ^s 0 ^s 18 ^s	67 ^s 0 ^s 0 ^s 5 ^s	47 ^s 24 ^s 0 ^s 15 ^s	59 ^s 0 ^s 0 ^s 2 ^s	8 ^s 97 ^s 0 ^s 22 ^s	16 ^s 9 ^s 2 ^s 0 ^s
	0 ^s 18 ^s	0 ^s 5 ^s	0 ^s 15 ^s	0 ^s 2 ^s	0 ^s 22 ^s	2 ^s 0 ^s
28	4 ^s 65 ^s 0 ^s 21 ^s	66 ^s 5 ^s 0 ^s 7 ^s	47 ^s 39 ^s 0 ^s 18 ^s	59 ^s 2 ^s 0 ^s 0 ^s	9 ^s 19 ^s 0 ^s 25 ^s	14 ^s 9 ^s 2 ^s 1 ^s
Sept. 7	4 ^s 86 ^s 0 ^s 23 ^s	65 ^s 8 ^s 0 ^s 7 ^s	47 ^s 57 ^s 0 ^s 21 ^s	59 ^s 2 ^s 0 ^s 2 ^s	9 ^s 44 ^s 0 ^s 29 ^s	12 ^s 8 ^s 2 ^s 0 ^s
17	5 ^s 09 ^s 0 ^s 26 ^s	65 ^s 1 ^s 0 ^s 9 ^s	47 ^s 78 ^s 0 ^s 23 ^s	59 ^s 0 ^s 0 ^s 5 ^s	9 ^s 73 ^s 0 ^s 33 ^s	10 ^s 8 ^s 2 ^s 0 ^s
27	5 ^s 35 ^s 0 ^s 28 ^s	64 ^s 2 ^s 1 ^s 0 ^s	48 ^s 01 ^s 0 ^s 26 ^s	58 ^s 5 ^s 0 ^s 7 ^s	10 ^s 06 ^s 0 ^s 37 ^s	8 ^s 8 ^s 1 ^s 8 ^s
	0 ^s 28 ^s	1 ^s 0 ^s	0 ^s 26 ^s	0 ^s 7 ^s	0 ^s 37 ^s	1 ^s 8 ^s
Oct. 7	5 ^s 63 ^s 0 ^s 30 ^s	63 ^s 2 ^s 1 ^s 1 ^s	48 ^s 27 ^s 0 ^s 28 ^s	57 ^s 8 ^s 0 ^s 9 ^s	10 ^s 43 ^s 0 ^s 39 ^s	7 ^s 0 ^s 1 ^s 7 ^s
17	5 ^s 93 ^s 0 ^s 32 ^s	62 ^s 1 ^s 1 ^s 2 ^s	48 ^s 55 ^s 0 ^s 29 ^s	56 ^s 9 ^s 1 ^s 1 ^s	10 ^s 82 ^s 0 ^s 42 ^s	5 ^s 3 ^s 1 ^s 5 ^s
27	6 ^s 25 ^s 0 ^s 32 ^s	60 ^s 9 ^s 1 ^s 2 ^s	48 ^s 84 ^s 0 ^s 30 ^s	55 ^s 8 ^s 1 ^s 3 ^s	11 ^s 24 ^s 0 ^s 44 ^s	3 ^s 8 ^s 1 ^s 2 ^s
Nov. 6	6 ^s 57 ^s 0 ^s 33 ^s	59 ^s 7 ^s 1 ^s 2 ^s	49 ^s 14 ^s 0 ^s 31 ^s	54 ^s 5 ^s 1 ^s 5 ^s	11 ^s 68 ^s 0 ^s 45 ^s	2 ^s 6 ^s 1 ^s 0 ^s
	0 ^s 33 ^s	1 ^s 2 ^s	0 ^s 31 ^s	1 ^s 5 ^s	0 ^s 45 ^s	1 ^s 0 ^s
16	6 ^s 90 ^s 0 ^s 32 ^s	58 ^s 5 ^s 1 ^s 2 ^s	49 ^s 45 ^s 0 ^s 31 ^s	53 ^s 0 ^s 1 ^s 6 ^s	12 ^s 13 ^s 0 ^s 44 ^s	1 ^s 6 ^s 0 ^s 7 ^s
26	7 ^s 22 ^s 0 ^s 31 ^s	57 ^s 3 ^s 1 ^s 0 ^s	49 ^s 76 ^s 0 ^s 30 ^s	51 ^s 4 ^s 1 ^s 6 ^s	12 ^s 57 ^s 0 ^s 43 ^s	0 ^s 9 ^s 0 ^s 2 ^s
Dec. 6	7 ^s 53 ^s 0 ^s 29 ^s	56 ^s 3 ^s 0 ^s 9 ^s	50 ^s 06 ^s 0 ^s 28 ^s	49 ^s 8 ^s 1 ^s 6 ^s	13 ^s 00 ^s 0 ^s 40 ^s	0 ^s 7 ^s 0 ^s 1 ^s
16	7 ^s 82 ^s 0 ^s 26 ^s	55 ^s 4 ^s 0 ^s 8 ^s	50 ^s 34 ^s 0 ^s 24 ^s	48 ^s 2 ^s 1 ^s 5 ^s	13 ^s 40 ^s 0 ^s 36 ^s	0 ^s 8 ^s 0 ^s 5 ^s
	0 ^s 26 ^s	0 ^s 8 ^s	0 ^s 24 ^s	1 ^s 5 ^s	0 ^s 36 ^s	0 ^s 5 ^s
26	8 ^s 08 ^s 0 ^s 22 ^s	54 ^s 6 ^s 0 ^s 5 ^s	50 ^s 58 ^s 0 ^s 22 ^s	46 ^s 7 ^s 1 ^s 4 ^s	13 ^s 76 ^s 0 ^s 32 ^s	1 ^s 3 ^s 0 ^s 8 ^s
36	8 ^s 30 ^s 0 ^s 22 ^s	54 ^s 1 ^s 0 ^s 5 ^s	50 ^s 80 ^s 0 ^s 22 ^s	45 ^s 3 ^s 1 ^s 4 ^s	14 ^s 08 ^s 0 ^s 32 ^s	2 ^s 1 ^s 0 ^s 8 ^s

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	83 Cancri.		Argus.		α Hydræ.	
	R.A.	Dec. North.	R.A.	Dec. South.	R.A.	Dec. South.
	^h 9	^m 11	^h 9	^m 13	^h 9	^m 21
	^s 18	^s 15	^s 58	^s 43	^s 8	^s 5
Jan. 1	37.11	37.4	35.96	11.5	6.76	20.4
11	37.34	36.6	36.22	15.0	6.98	22.6
21	37.52	36.1	36.40	18.7	7.15	24.7
31	37.65	35.8	36.50	22.5	7.27	26.6
	0.08	0.0	0.01	3.7	0.07	1.7
Feb. 10	37.73	35.8	36.51	26.2	7.34	28.3
20	37.76	35.9	36.45	29.7	7.37	29.7
Mar. 1	37.74	36.2	36.31	33.0	7.35	30.9
11	37.67	36.7	36.10	35.9	7.29	31.8
	0.10	0.6	0.26	2.6	0.10	0.7
21	37.57	37.3	35.84	38.5	7.19	32.5
31	37.44	37.9	35.53	40.7	7.07	33.0
Apr. 10	37.29	38.6	35.19	42.4	6.93	33.2
20	37.13	39.2	34.83	43.7	6.78	33.1
	0.15	0.7	0.37	0.7	0.15	0.2
30	36.98	39.9	34.46	44.4	6.63	32.9
May 10	36.83	40.4	34.09	44.6	6.48	32.5
20	36.69	40.9	33.73	44.3	6.34	31.8
30	36.57	41.3	33.39	43.5	6.22	31.0
	0.09	0.3	0.31	1.2	0.10	0.9
June 9	36.48	41.6	33.08	42.3	6.12	30.1
19	36.41	41.8	32.80	40.6	6.04	29.1
29	36.37	41.9	32.57	38.4	5.99	27.9
July 9	36.35	42.0	32.38	35.9	5.96	26.6
	0.02	0.1	0.13	2.8	0.01	1.2
19	36.37	41.9	32.25	33.1	5.95	25.4
29	36.41	41.8	32.18	30.2	5.97	24.1
Aug. 8	36.49	41.5	32.17	26.8	6.02	22.9
18	36.60	41.0	32.23	23.7	6.11	21.7
	0.14	0.6	0.13	2.9	0.11	1.0
28	36.74	40.4	32.36	20.8	6.22	20.7
Sept. 7	36.90	39.7	32.55	18.0	6.36	20.0
17	37.09	38.9	32.81	15.6	6.53	19.6
27	37.31	37.8	33.13	13.6	6.73	19.4
	0.25	1.2	0.38	1.4	0.22	0.2
Oct. 7	37.56	36.6	33.51	12.2	6.95	19.6
17	37.84	35.3	33.94	11.3	7.21	20.2
27	38.13	33.9	34.40	11.0	7.49	21.1
Nov. 6	38.44	32.4	34.88	11.4	7.78	22.3
	0.33	1.5	0.49	1.0	0.30	1.6
16	38.77	30.9	35.37	12.4	8.08	23.9
26	39.10	29.4	35.86	14.0	8.40	25.7
Dec. 6	39.43	27.9	36.32	16.2	8.71	27.7
16	39.74	26.6	36.73	18.9	9.00	29.9
	0.28	1.1	0.37	3.1	0.27	2.2
26	40.02	25.5	37.10	22.0	9.27	32.1
36	40.27	24.6	37.40	25.5	9.51	34.3

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	θ Ursæ Majoris.		ϵ Leonis.		π Leonis.	
	R.A.	Dec. North.	R.A.	Dec. North.	R.A.	Dec. North.
	^h 9 ^m 23	[°] 52 ['] 16	^h 9 ^m 38	[°] 24 ['] 22	^h 9 ^m 53	[°] 8 ['] 40
Jan. 1	61 ^a .29 ^a	21 ^a .8 ^a	21 ^a .68 ^a	39 ^a .2 ^a	14 ^a .62 ^a	27 ^a .7 ^a
11	61 ^b .63 ^b 0 ^a .34	22 ^b .7 ^b 0 ^a .9	21 ^b .94 ^b 0 ^a .26	38 ^b .6 ^b 0 ^a .6	14 ^b .87 ^b 0 ^a .25	26 ^b .2 ^b 1 ^a .5
21	61 ^c .91 ^c 0 ^a .28	24 ^c .0 ^c 1 ^a .3	22 ^c .15 ^c 0 ^a .21	38 ^c .3 ^c 0 ^a .3	15 ^c .08 ^c 0 ^a .21	24 ^c .9 ^c 1 ^a .3
31	62 ^d .11 ^d 0 ^a .20	25 ^d .6 ^d 1 ^a .6	22 ^d .32 ^d 0 ^a .17	38 ^d .3 ^d 0 ^a .0	15 ^d .25 ^d 0 ^a .17	23 ^d .9 ^d 1 ^a .0
	0 ^a .12	1 ^a .9	0 ^a .11	0 ^a .3	0 ^a .11	0 ^a .7
Feb. 10	62 ^e .23 ^e	27 ^e .5 ^e	22 ^e .43 ^e	38 ^e .6 ^e	15 ^e .36 ^e	23 ^e .2 ^e
20	62 ^f .28 ^f 0 ^a .05	29 ^f .6 ^f 2 ^a .1	22 ^f .49 ^f 0 ^a .06	39 ^f .1 ^f 0 ^a .5	15 ^f .43 ^f 0 ^a .07	22 ^f .7 ^f 0 ^a .5
Mar. 1	62 ^g .25 ^g 0 ^a .03	31 ^g .7 ^g 2 ^a .1	22 ^g .49 ^g 0 ^a .00	39 ^g .8 ^g 0 ^a .7	15 ^g .46 ^g 0 ^a .02	22 ^g .5 ^g 0 ^a .2
11	62 ^h .15 ^h 0 ^a .10	33 ^h .8 ^h 2 ^a .1	22 ^h .45 ^h 0 ^a .04	40 ^h .6 ^h 0 ^a .8	15 ^h .42 ^h 0 ^a .03	22 ^h .5 ^h 0 ^a .0
	0 ^a .16	2 ^a .0	0 ^a .08	1 ^a .0	0 ^a .06	0 ^a .1
21	61 ⁱ .99 ⁱ	35 ⁱ .8 ⁱ	22 ⁱ .37 ⁱ	41 ⁱ .6 ⁱ	15 ⁱ .36 ⁱ	22 ⁱ .6 ⁱ
31	61 ^j .79 ^j 0 ^a .20	37 ^j .6 ^j 1 ^a .8	22 ^j .26 ^j 0 ^a .11	42 ^j .5 ^j 0 ^a .9	15 ^j .27 ^j 0 ^a .09	22 ^j .9 ^j 0 ^a .3
Apr. 10	61 ^k .55 ^k 0 ^a .24	39 ^k .1 ^k 1 ^a .5	22 ^k .12 ^k 0 ^a .14	43 ^k .5 ^k 1 ^a .0	15 ^k .15 ^k 0 ^a .12	23 ^k .3 ^k 0 ^a .4
20	61 ^l .29 ^l 0 ^a .26	40 ^l .3 ^l 1 ^a .2	21 ^l .96 ^l 0 ^a .16	44 ^l .4 ^l 0 ^a .9	15 ^l .02 ^l 0 ^a .13	23 ^l .8 ^l 0 ^a .5
	0 ^a .27	0 ^a .9	0 ^a .16	0 ^a .8	0 ^a .14	0 ^a .6
30	61 ^m .02 ^m	41 ^m .2 ^m	21 ^m .80 ^m	45 ^m .2 ^m	14 ^m .88 ^m	24 ^m .4 ^m
May 10	60 ⁿ .75 ⁿ 0 ^a .27	41 ⁿ .7 ⁿ 0 ^a .5	21 ⁿ .65 ⁿ 0 ^a .15	45 ⁿ .8 ⁿ 0 ^a .6	14 ⁿ .74 ⁿ 0 ^a .14	24 ⁿ .9 ⁿ 0 ^a .5
20	60 ^o .50 ^o 0 ^a .25	41 ^o .7 ^o 0 ^a .0	21 ^o .50 ^o 0 ^a .15	46 ^o .4 ^o 0 ^a .6	14 ^o .61 ^o 0 ^a .13	25 ^o .6 ^o 0 ^a .7
30	60 ^p .28 ^p 0 ^a .22	41 ^p .4 ^p 0 ^a .3	21 ^p .37 ^p 0 ^a .13	46 ^p .8 ^p 0 ^a .4	14 ^p .49 ^p 0 ^a .12	26 ^p .2 ^p 0 ^a .6
	0 ^a .19	0 ^a .6	0 ^a .11	0 ^a .2	0 ^a .10	0 ^a .6
June 9	60 ^q .09 ^q	40 ^q .8 ^q	21 ^q .26 ^q	47 ^q .0 ^q	14 ^q .39 ^q	26 ^q .8 ^q
19	59 ^r .93 ^r 0 ^a .16	39 ^r .8 ^r 1 ^a .0	21 ^r .17 ^r 0 ^a .09	47 ^r .1 ^r 0 ^a .1	14 ^r .30 ^r 0 ^a .09	27 ^r .4 ^r 0 ^a .6
29	59 ^s .82 ^s 0 ^a .11	38 ^s .4 ^s 1 ^a .4	21 ^s .11 ^s 0 ^a .06	47 ^s .0 ^s 0 ^a .1	14 ^s .24 ^s 0 ^a .06	27 ^s .9 ^s 0 ^a .5
July 9	59 ^t .75 ^t 0 ^a .07	36 ^t .8 ^t 1 ^a .6	21 ^t .08 ^t 0 ^a .03	46 ^t .7 ^t 0 ^a .3	14 ^t .19 ^t 0 ^a .05	28 ^t .4 ^t 0 ^a .5
	0 ^a .02	1 ^a .8	0 ^a .01	0 ^a .3	0 ^a .02	0 ^a .4
19	59 ^u .73 ^u	35 ^u .0 ^u	21 ^u .07 ^u	46 ^u .4 ^u	14 ^u .17 ^u	28 ^u .8 ^u
29	59 ^v .76 ^v 0 ^a .03	32 ^v .9 ^v 2 ^a .1	21 ^v .09 ^v 0 ^a .02	45 ^v .9 ^v 0 ^a .5	14 ^v .17 ^v 0 ^a .00	29 ^v .1 ^v 0 ^a .3
Aug. 8	59 ^w .83 ^w 0 ^a .07	30 ^w .7 ^w 2 ^a .2	21 ^w .14 ^w 0 ^a .05	45 ^w .2 ^w 0 ^a .7	14 ^w .20 ^w 0 ^a .03	29 ^w .3 ^w 0 ^a .2
18	59 ^x .97 ^x 0 ^a .14	28 ^x .2 ^x 2 ^a .5	21 ^x .22 ^x 0 ^a .08	44 ^x .3 ^x 0 ^a .9	14 ^x .07 ^x 0 ^a .06	29 ^x .3 ^x 0 ^a .1
	0 ^a .18	2 ^a .4	0 ^a .11	1 ^a .0	0 ^a .08	0 ^a .1
28	60 ^y .15 ^y	25 ^y .8 ^y	21 ^y .33 ^y	43 ^y .3 ^y	14 ^y .35 ^y	29 ^y .3 ^y
Sept. 7	60 ^z .37 ^z 0 ^a .22	23 ^z .4 ^z 2 ^a .4	21 ^z .48 ^z 0 ^a .15	42 ^z .1 ^z 1 ^a .2	14 ^z .47 ^z 0 ^a .12	29 ^z .0 ^z 0 ^a .3
17	60 ^a .63 ^a 0 ^a .26	20 ^a .9 ^a 2 ^a .5	21 ^a .65 ^a 0 ^a .17	40 ^a .8 ^a 1 ^a .3	14 ^a .61 ^a 0 ^a .14	28 ^a .5 ^a 0 ^a .5
27	60 ^b .94 ^b 0 ^a .31	18 ^b .6 ^b 2 ^a .3	21 ^b .86 ^b 0 ^a .21	39 ^b .4 ^b 1 ^a .4	14 ^b .79 ^b 0 ^a .18	27 ^b .8 ^b 0 ^a .7
	0 ^a .35	2 ^a .3	0 ^a .23	1 ^a .5	0 ^a .21	1 ^a .0
Oct. 7	61 ^c .29 ^c	16 ^c .3 ^c	22 ^c .09 ^c	37 ^c .9 ^c	15 ^c .00 ^c	26 ^c .8 ^c
17	61 ^d .68 ^d 0 ^a .39	14 ^d .2 ^d 2 ^a .1	22 ^d .36 ^d 0 ^a .27	36 ^d .3 ^d 1 ^a .6	15 ^d .24 ^d 0 ^a .24	25 ^d .7 ^d 1 ^a .1
27	62 ^e .10 ^e 0 ^a .42	12 ^e .3 ^e 1 ^a .9	22 ^e .66 ^e 0 ^a .30	34 ^e .6 ^e 1 ^a .7	15 ^e .50 ^e 0 ^a .26	24 ^e .3 ^e 1 ^a .4
Nov. 6	62 ^f .55 ^f 0 ^a .45	10 ^f .6 ^f 1 ^a .7	22 ^f .97 ^f 0 ^a .31	32 ^f .9 ^f 1 ^a .7	15 ^f .79 ^f 0 ^a .29	22 ^f .8 ^f 1 ^a .5
	0 ^a .47	1 ^a .3	0 ^a .33	1 ^a .7	0 ^a .31	1 ^a .7
16	63 ^g .02 ^g	9 ^g .3 ^g	23 ^g .30 ^g	31 ^g .2 ^g	16 ^g .10 ^g	21 ^g .1 ^g
26	63 ^h .50 ^h 0 ^a .48	8 ^h .3 ^h 1 ^a .0	23 ^h .65 ^h 0 ^a .35	29 ^h .6 ^h 1 ^a .6	16 ^h .42 ^h 0 ^a .32	19 ^h .3 ^h 1 ^a .8
Dec. 6	63 ⁱ .97 ⁱ 0 ^a .47	7 ⁱ .7 ⁱ 0 ^a .6	24 ⁱ .00 ⁱ 0 ^a .35	28 ⁱ .2 ⁱ 1 ^a .4	16 ⁱ .74 ⁱ 0 ^a .32	17 ⁱ .4 ⁱ 1 ^a .9
16	64 ^j .42 ^j 0 ^a .45	7 ^j .6 ^j 0 ^a .1	24 ^j .33 ^j 0 ^a .33	26 ^j .9 ^j 1 ^a .3	17 ^j .05 ^j 0 ^a .31	15 ^j .7 ^j 1 ^a .7
	0 ^a .42	0 ^a .3	0 ^a .31	1 ^a .0	0 ^a .30	1 ^a .7
26	64 ^k .84 ^k	7 ^k .9 ^k	24 ^k .64 ^k	25 ^k .9 ^k	17 ^k .35 ^k	14 ^k .0 ^k
36	65 ^l .21 ^l 0 ^a .37	8 ^l .6 ^l 0 ^a .7	24 ^l .93 ^l 0 ^a .29	25 ^l .1 ^l 0 ^a .8	17 ^l .62 ^l 0 ^a .27	12 ^l .4 ^l 1 ^a .6

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Leonis. (Regulus)		γ Leonis.		ρ Leonis.	
	R.A.	Dec. North.	R.A.	Dec. North.	R.A.	Dec. North.
	^h 10	^m 1	^h 10	^m 12	^h 10	^m 25
	[°] 12	['] 36	[°] 20	['] 30	[°] 9	['] 58
Jan. 1	20° 76'	0° 26'	41° 77'	0° 28'	51° 85'	0° 27'
11	21° 02'	0° 23'	42° 05'	0° 24'	52° 12'	0° 24'
21	21° 24'	0° 18'	42° 29'	0° 19'	52° 36'	0° 20'
31	21° 42'	0° 12'	42° 48'	0° 15'	52° 56'	0° 14'
Feb. 10	21° 54'	0° 08'	42° 63'	0° 09'	52° 70'	0° 10'
20	21° 62'	0° 03'	42° 72'	0° 04'	52° 80'	0° 05'
Mar. 1	21° 65'	0° 02'	42° 76'	0° 00'	52° 85'	0° 01'
11	21° 63'	0° 06'	42° 76'	0° 05'	52° 86'	0° 03'
21	21° 57'	0° 09'	42° 71'	0° 08'	52° 83'	0° 07'
31	21° 48'	0° 11'	42° 63'	0° 11'	52° 76'	0° 09'
Apr. 10	21° 37'	0° 13'	42° 52'	0° 13'	52° 67'	0° 11'
20	21° 24'	0° 13'	42° 39'	0° 14'	52° 56'	0° 12'
30	21° 11'	0° 14'	42° 25'	0° 14'	52° 44'	0° 13'
May 10	20° 97'	0° 13'	42° 11'	0° 14'	52° 31'	0° 13'
20	20° 84'	0° 13'	41° 97'	0° 13'	52° 18'	0° 12'
30	20° 71'	0° 11'	41° 84'	0° 11'	52° 06'	0° 11'
June 9	20° 60'	0° 09'	41° 73'	0° 10'	51° 95'	0° 10'
19	20° 51'	0° 07'	41° 63'	0° 08'	51° 85'	0° 08'
29	20° 44'	0° 05'	41° 55'	0° 06'	51° 77'	0° 07'
July 9	20° 39'	0° 03'	41° 49'	0° 04'	51° 70'	0° 05'
19	20° 36'	0° 00'	41° 45'	0° 01'	51° 65'	0° 02'
29	20° 36'	0° 02'	41° 44'	0° 01'	51° 63'	0° 00'
Aug. 8	20° 38'	0° 05'	41° 45'	0° 04'	51° 63'	0° 03'
18	20° 43'	0° 09'	41° 49'	0° 08'	51° 66'	0° 05'
28	20° 52'	0° 11'	41° 57'	0° 10'	51° 71'	0° 09'
Sept. 7	20° 63'	0° 14'	41° 67'	0° 14'	51° 80'	0° 11'
17	20° 77'	0° 17'	41° 81'	0° 17'	51° 91'	0° 15'
27	20° 94'	0° 20'	41° 98'	0° 20'	52° 06'	0° 18'
Oct. 7	21° 14'	0° 24'	42° 18'	0° 24'	52° 24'	0° 22'
17	21° 38'	0° 26'	42° 42'	0° 27'	52° 46'	0° 25'
27	21° 64'	0° 29'	42° 69'	0° 29'	52° 71'	0° 27'
Nov. 6	21° 93'	0° 31'	42° 98'	0° 32'	52° 98'	0° 30'
16	22° 24'	0° 33'	43° 30'	0° 34'	53° 28'	0° 32'
26	22° 57'	0° 32'	43° 64'	0° 34'	53° 60'	0° 32'
Dec. 6	22° 89'	0° 32'	43° 98'	0° 33'	53° 92'	0° 33'
16	23° 21'	0° 31'	44° 31'	0° 32'	54° 25'	0° 31'
26	23° 52'	0° 28'	44° 63'	0° 30'	54° 56'	0° 30'
36	23° 80'	0° 28'	44° 93'	0° 30'	54° 86'	0° 30'

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	η Argus.		ι Leonis.		α Ursæ Majoris.	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 10 ^m 39	[°] 58 ['] 59	^h 10 ^m 42	[°] 11 ['] 14	^h 10 ^m 55	[°] 62 ['] 27
Jan. I	58° 75' 0.40	11° 8' 3.1	19° 17' 0.29	29° 0' 1.5	33° 37' 0.54	28° 6' 0.5
II	59° 15' 0.34	14° 9' 3.3	19° 46' 0.25	27° 5' 1.3	33° 91' 0.48	29° 1' 1.0
21	59° 49' 0.27	18° 2' 3.5	19° 71' 0.21	26° 2' 1.0	34° 39' 0.41	30° 1' 1.5
31	59° 76' 0.19	21° 7' 3.6	19° 92' 0.16	25° 2' 0.7	34° 80' 0.33	31° 6' 1.9
Feb. 10	59° 95' 0.11	25° 3' 3.7	20° 08' 0.12	24° 5' 0.4	35° 13' 0.24	33° 5' 2.3
20	60° 06' 0.04	29° 0' 3.6	20° 20' 0.07	24° 1' 0.2	35° 37' 0.14	35° 8' 2.5
Mar. I	60° 10' 0.04	32° 6' 3.5	20° 27' 0.08	23° 9' 0.1	35° 51' 0.04	38° 3' 2.7
11	60° 06' 0.10	36° 1' 3.2	20° 29' 0.08	24° 0' 0.3	35° 55' 0.05	41° 0' 2.7
21	59° 06' 0.16	39° 3' 2.9	20° 27' 0.05	24° 3' 0.5	35° 50' 0.13	43° 7' 2.6
31	59° 80' 0.21	42° 2' 2.6	20° 22' 0.08	24° 8' 0.6	35° 37' 0.20	46° 3' 2.5
Apr. 10	59° 59' 0.25	44° 8' 2.2	20° 14' 0.10	25° 4' 0.7	35° 17' 0.26	48° 8' 2.2
20	59° 34' 0.29	47° 0' 1.7	20° 04' 0.11	26° 1' 0.7	34° 91' 0.30	51° 0' 1.8
30	59° 05' 0.31	48° 7' 1.3	19° 93' 0.12	26° 8' 0.7	34° 61' 0.33	52° 8' 1.5
May 10	58° 74' 0.32	50° 0' 0.8	19° 81' 0.13	27° 5' 0.7	34° 28' 0.35	54° 3' 1.0
20	58° 42' 0.33	50° 8' 0.3	19° 68' 0.12	28° 2' 0.7	33° 93' 0.35	55° 3' 0.5
30	58° 09' 0.33	51° 1' 0.2	19° 56' 0.11	28° 9' 0.7	33° 58' 0.34	55° 8' 0.0
June 9	57° 76' 0.32	50° 9' 0.7	19° 45' 0.11	29° 6' 0.6	33° 24' 0.32	55° 8' 0.5
19	57° 44' 0.30	50° 2' 1.2	19° 34' 0.09	30° 2' 0.5	32° 92' 0.29	55° 3' 0.9
29	57° 14' 0.27	49° 0' 1.6	19° 25' 0.07	30° 7' 0.3	32° 63' 0.26	54° 4' 1.4
July 9	56° 87' 0.24	47° 4' 2.0	19° 18' 0.06	31° 0' 0.3	32° 37' 0.21	53° 0' 1.8
19	56° 63' 0.20	45° 4' 2.4	19° 12' 0.03	31° 3' 0.2	32° 16' 0.16	51° 2' 2.1
29	56° 43' 0.15	43° 0' 2.6	19° 09' 0.01	31° 5' 0.0	32° 00' 0.11	49° 1' 2.5
Aug. 8	56° 28' 0.09	40° 4' 2.8	19° 08' 0.00	31° 5' 0.1	31° 89' 0.05	46° 6' 2.7
18	56° 19' 0.03	37° 6' 2.9	19° 08' 0.03	31° 4' 0.3	31° 84' 0.01	43° 9' 2.9
28	56° 16' 0.04	34° 7' 3.1	19° 11' 0.07	31° 1' 0.6	31° 85' 0.08	41° 0' 3.4
Sept. 7	56° 20' 0.12	31° 6' 2.8	19° 18' 0.10	30° 5' 0.7	31° 93' 0.14	37° 6' 3.3
17	56° 32' 0.19	28° 8' 2.5	19° 28' 0.14	29° 8' 1.0	32° 07' 0.21	34° 3' 3.3
27	56° 51' 0.26	26° 3' 2.2	19° 42' 0.17	28° 8' 1.1	32° 28' 0.28	31° 0' 3.2
Oct. 7	56° 77' 0.33	24° 1' 1.7	19° 59' 0.20	27° 7' 1.4	32° 56' 0.35	27° 8' 3.1
17	57° 10' 0.40	22° 4' 1.2	19° 79' 0.23	26° 3' 1.6	32° 91' 0.41	24° 7' 3.0
27	57° 50' 0.45	21° 2' 0.6	20° 02' 0.27	24° 7' 1.7	33° 32' 0.47	21° 7' 2.7
Nov. 6	57° 95' 0.48	20° 6' 0.0	20° 29' 0.30	23° 0' 1.9	33° 79' 0.53	19° 0' 2.4
16	58° 43' 0.51	20° 6' 0.7	20° 59' 0.32	21° 1' 2.0	34° 32' 0.56	16° 6' 2.0
26	58° 94' 0.51	21° 3' 1.2	20° 91' 0.32	19° 1' 2.0	34° 88' 0.59	14° 6' 1.5
Dec. 6	59° 45' 0.50	22° 5' 1.8	21° 23' 0.33	17° 1' 1.9	35° 47' 0.60	13° 1' 1.0
16	59° 95' 0.47	24° 3' 2.4	21° 56' 0.32	15° 2' 1.8	36° 07' 0.59	12° 1' 0.4
26	60° 42' 0.43	26° 7' 2.8	21° 88' 0.30	13° 4' 1.6	36° 66' 0.57	11° 7' 0.1
36	60° 85' 0.43	29° 5' 2.5	22° 18' 0.30	11° 8' 1.6	37° 23' 0.57	11° 8' 0.1

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	χ Leonis.		δ Leonis.		δ Hydræ et Crateris.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. South.
	^h 10 ^m 58	[°] 8 ['] 2	^h 11 ^m 7	[°] 21 ['] 14	^h 11 ^m 12	[°] 14 ['] 3
Jan. 1	12 ^s 54 ^s	51 ^s 6 ^s	5 ^s 08 ^s	38 ^s 8 ^s	44 ^s 83 ^s	49 ^s 7 ^s
11	12 ^s 54 ^s 0 ^s 29	49 ^s 9 ^s 1 ^s 7	5 ^s 39 ^s 0 ^s 31	37 ^s 6 ^s 1 ^s 2	45 ^s 13 ^s 0 ^s 30	52 ^s 0 ^s 2 ^s 3
21	13 ^s 09 ^s 0 ^s 26	48 ^s 4 ^s 1 ^s 5	5 ^s 67 ^s 0 ^s 28	36 ^s 6 ^s 1 ^s 0	45 ^s 39 ^s 0 ^s 26	54 ^s 4 ^s 2 ^s 4
31	13 ^s 31 ^s 0 ^s 22	47 ^s 2 ^s 1 ^s 2	5 ^s 91 ^s 0 ^s 24	36 ^s 0 ^s 0 ^s 6	45 ^s 62 ^s 0 ^s 23	56 ^s 6 ^s 2 ^s 2
	0 ^s 18	1 ^s 0	0 ^s 20	0 ^s 2	0 ^s 18	2 ^s 1
Feb. 10	13 ^s 49 ^s 0 ^s 13	46 ^s 2 ^s 0 ^s 6	6 ^s 11 ^s 0 ^s 15	35 ^s 8 ^s 0 ^s 1	45 ^s 80 ^s 0 ^s 14	58 ^s 7 ^s 1 ^s 9
20	13 ^s 62 ^s 0 ^s 08	45 ^s 6 ^s 0 ^s 4	6 ^s 26 ^s 0 ^s 10	35 ^s 9 ^s 0 ^s 4	45 ^s 94 ^s 0 ^s 09	60 ^s 6 ^s 1 ^s 7
Mar. 1	13 ^s 70 ^s 0 ^s 04	45 ^s 2 ^s 0 ^s 1	6 ^s 36 ^s 0 ^s 05	36 ^s 3 ^s 0 ^s 7	46 ^s 03 ^s 0 ^s 05	62 ^s 3 ^s 1 ^s 5
11	13 ^s 74 ^s 0 ^s 00	45 ^s 1 ^s 0 ^s 1	6 ^s 41 ^s 0 ^s 01	37 ^s 0 ^s 0 ^s 9	46 ^s 08 ^s 0 ^s 01	63 ^s 8 ^s 1 ^s 2
	0 ^s 00	0 ^s 1	0 ^s 01	0 ^s 9	0 ^s 01	1 ^s 2
21	13 ^s 74 ^s 0 ^s 04	45 ^s 2 ^s 0 ^s 3	6 ^s 42 ^s 0 ^s 03	37 ^s 9 ^s 1 ^s 0	46 ^s 09 ^s 0 ^s 03	65 ^s 0 ^s 1 ^s 0
31	13 ^s 70 ^s 0 ^s 06	45 ^s 5 ^s 0 ^s 4	6 ^s 39 ^s 0 ^s 07	38 ^s 9 ^s 1 ^s 2	46 ^s 06 ^s 0 ^s 05	66 ^s 0 ^s 0 ^s 7
Apr. 10	13 ^s 64 ^s 0 ^s 09	45 ^s 9 ^s 0 ^s 6	6 ^s 32 ^s 0 ^s 09	40 ^s 1 ^s 1 ^s 1	46 ^s 01 ^s 0 ^s 08	66 ^s 7 ^s 0 ^s 5
20	13 ^s 55 ^s 0 ^s 11	46 ^s 5 ^s 0 ^s 7	6 ^s 23 ^s 0 ^s 10	41 ^s 2 ^s 1 ^s 1	45 ^s 93 ^s 0 ^s 10	67 ^s 2 ^s 0 ^s 2
	0 ^s 11	0 ^s 7	0 ^s 10	1 ^s 1	0 ^s 10	0 ^s 2
30	13 ^s 44 ^s 0 ^s 11	47 ^s 2 ^s 0 ^s 7	6 ^s 13 ^s 0 ^s 12	42 ^s 3 ^s 1 ^s 1	45 ^s 83 ^s 0 ^s 11	67 ^s 4 ^s 0 ^s 0
May 10	13 ^s 33 ^s 0 ^s 12	47 ^s 9 ^s 0 ^s 7	6 ^s 01 ^s 0 ^s 13	43 ^s 4 ^s 0 ^s 9	45 ^s 72 ^s 0 ^s 11	67 ^s 4 ^s 0 ^s 1
20	13 ^s 21 ^s 0 ^s 12	48 ^s 6 ^s 0 ^s 7	5 ^s 88 ^s 0 ^s 13	44 ^s 3 ^s 0 ^s 8	45 ^s 61 ^s 0 ^s 12	67 ^s 3 ^s 0 ^s 4
30	13 ^s 09 ^s 0 ^s 11	49 ^s 3 ^s 0 ^s 6	5 ^s 75 ^s 0 ^s 12	45 ^s 1 ^s 0 ^s 7	45 ^s 49 ^s 0 ^s 12	66 ^s 9 ^s 0 ^s 6
	0 ^s 11	0 ^s 6	0 ^s 12	0 ^s 7	0 ^s 12	0 ^s 6
June 9	12 ^s 98 ^s 0 ^s 11	49 ^s 9 ^s 0 ^s 7	5 ^s 63 ^s 0 ^s 12	45 ^s 8 ^s 0 ^s 5	45 ^s 37 ^s 0 ^s 12	66 ^s 3 ^s 0 ^s 7
19	12 ^s 87 ^s 0 ^s 09	50 ^s 6 ^s 0 ^s 5	5 ^s 51 ^s 0 ^s 11	46 ^s 3 ^s 0 ^s 3	45 ^s 25 ^s 0 ^s 11	65 ^s 6 ^s 0 ^s 9
29	12 ^s 78 ^s 0 ^s 08	51 ^s 1 ^s 0 ^s 5	5 ^s 40 ^s 0 ^s 09	46 ^s 6 ^s 0 ^s 1	45 ^s 14 ^s 0 ^s 10	64 ^s 7 ^s 1 ^s 0
July 9	12 ^s 70 ^s 0 ^s 07	51 ^s 6 ^s 0 ^s 4	5 ^s 31 ^s 0 ^s 08	46 ^s 7 ^s 0 ^s 1	45 ^s 04 ^s 0 ^s 08	63 ^s 7 ^s 1 ^s 1
	0 ^s 07	0 ^s 4	0 ^s 08	0 ^s 1	0 ^s 08	1 ^s 1
19	12 ^s 63 ^s 0 ^s 05	52 ^s 0 ^s 0 ^s 3	5 ^s 23 ^s 0 ^s 06	46 ^s 6 ^s 0 ^s 3	44 ^s 96 ^s 0 ^s 07	62 ^s 6 ^s 1 ^s 2
29	12 ^s 58 ^s 0 ^s 03	52 ^s 3 ^s 0 ^s 2	5 ^s 17 ^s 0 ^s 03	46 ^s 3 ^s 0 ^s 5	44 ^s 89 ^s 0 ^s 06	61 ^s 4 ^s 1 ^s 2
Aug. 8	12 ^s 55 ^s 0 ^s 01	52 ^s 5 ^s 0 ^s 0	5 ^s 14 ^s 0 ^s 01	45 ^s 8 ^s 0 ^s 7	44 ^s 83 ^s 0 ^s 03	60 ^s 2 ^s 1 ^s 1
18	12 ^s 54 ^s 0 ^s 02	52 ^s 5 ^s 0 ^s 1	5 ^s 13 ^s 0 ^s 01	45 ^s 1 ^s 0 ^s 9	44 ^s 80 ^s 0 ^s 00	59 ^s 1 ^s 1 ^s 1
	0 ^s 02	0 ^s 1	0 ^s 01	0 ^s 9	0 ^s 00	1 ^s 1
28	12 ^s 56 ^s 0 ^s 05	52 ^s 4 ^s 0 ^s 4	5 ^s 14 ^s 0 ^s 04	44 ^s 2 ^s 1 ^s 1	44 ^s 80 ^s 0 ^s 02	58 ^s 0 ^s 1 ^s 0
Sept. 7	12 ^s 61 ^s 0 ^s 08	52 ^s 0 ^s 0 ^s 5	5 ^s 18 ^s 0 ^s 08	43 ^s 9 ^s 1 ^s 3	44 ^s 82 ^s 0 ^s 07	57 ^s 0 ^s 0 ^s 8
17	12 ^s 69 ^s 0 ^s 11	51 ^s 5 ^s 0 ^s 8	5 ^s 26 ^s 0 ^s 11	41 ^s 6 ^s 1 ^s 6	44 ^s 89 ^s 0 ^s 10	56 ^s 2 ^s 0 ^s 5
27	12 ^s 80 ^s 0 ^s 15	50 ^s 7 ^s 1 ^s 0	5 ^s 37 ^s 0 ^s 15	40 ^s 0 ^s 1 ^s 7	44 ^s 99 ^s 0 ^s 14	55 ^s 7 ^s 0 ^s 2
	0 ^s 15	1 ^s 0	0 ^s 15	1 ^s 7	0 ^s 14	0 ^s 2
Oct. 7	12 ^s 95 ^s 0 ^s 19	49 ^s 7 ^s 1 ^s 3	5 ^s 52 ^s 0 ^s 19	38 ^s 3 ^s 1 ^s 9	45 ^s 13 ^s 0 ^s 17	55 ^s 5 ^s 0 ^s 1
17	13 ^s 14 ^s 0 ^s 23	48 ^s 4 ^s 1 ^s 5	5 ^s 71 ^s 0 ^s 23	36 ^s 4 ^s 2 ^s 0	45 ^s 30 ^s 0 ^s 22	55 ^s 6 ^s 0 ^s 4
27	13 ^s 37 ^s 0 ^s 26	46 ^s 9 ^s 1 ^s 7	5 ^s 94 ^s 0 ^s 26	34 ^s 4 ^s 2 ^s 1	45 ^s 52 ^s 0 ^s 25	56 ^s 0 ^s 0 ^s 9
Nov. 6	13 ^s 63 ^s 0 ^s 28	45 ^s 2 ^s 1 ^s 8	6 ^s 20 ^s 0 ^s 30	32 ^s 3 ^s 2 ^s 2	45 ^s 77 ^s 0 ^s 28	56 ^s 9 ^s 1 ^s 1
	0 ^s 28	1 ^s 8	0 ^s 30	2 ^s 2	0 ^s 28	1 ^s 1
16	13 ^s 91 ^s 0 ^s 31	43 ^s 4 ^s 2 ^s 0	6 ^s 50 ^s 0 ^s 32	30 ^s 1 ^s 2 ^s 2	46 ^s 05 ^s 0 ^s 31	58 ^s 0 ^s 1 ^s 6
26	14 ^s 22 ^s 0 ^s 32	41 ^s 4 ^s 2 ^s 0	6 ^s 82 ^s 0 ^s 33	27 ^s 9 ^s 2 ^s 0	46 ^s 36 ^s 0 ^s 33	59 ^s 6 ^s 1 ^s 8
Dec. 6	14 ^s 54 ^s 0 ^s 32	39 ^s 4 ^s 2 ^s 0	7 ^s 15 ^s 0 ^s 35	25 ^s 9 ^s 2 ^s 0	46 ^s 69 ^s 0 ^s 33	61 ^s 4 ^s 2 ^s 0
16	14 ^s 86 ^s 0 ^s 32	37 ^s 4 ^s 1 ^s 9	7 ^s 50 ^s 0 ^s 34	23 ^s 9 ^s 1 ^s 7	47 ^s 02 ^s 0 ^s 32	63 ^s 4 ^s 2 ^s 2
	0 ^s 32	1 ^s 9	0 ^s 34	1 ^s 7	0 ^s 32	2 ^s 2
26	15 ^s 18 ^s 0 ^s 31	35 ^s 5 ^s 1 ^s 8	7 ^s 84 ^s 0 ^s 32	22 ^s 2 ^s 1 ^s 4	47 ^s 34 ^s 0 ^s 30	65 ^s 6 ^s 2 ^s 4
36	15 ^s 49 ^s 0 ^s 31	33 ^s 7 ^s 1 ^s 8	8 ^s 16 ^s 0 ^s 32	20 ^s 8 ^s 1 ^s 4	47 ^s 64 ^s 0 ^s 30	68 ^s 0 ^s 2 ^s 4

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Leonis.			β Leonis.			γ Ursæ Majoris.		
	R. A.	Dec. South.		R. A.	Dec. North.		R. A.	Dec. North.	
	^h 11 ^m 30	[°] 0 5		^h 11 ^m 42	[°] 15 18		^h 11 ^m 46	[°] 54 25	
Jan. 1	11 ^h 47 ^m 0 ^s	42 [°] 8 ['] 0 ["]		19 ^h 27 ^m 0 ^s	30 [°] 5 ['] 0 ["]		51 ^h 86 ^m 0 ^s	27 [°] 7 ['] 0 ["]	
11	11 ^h 47 ^m 30 ^s	44 [°] 8 ['] 20 ["]		19 ^h 59 ^m 0 ^s	28 [°] 9 ['] 0 ["]		52 ^h 33 ^m 0 ^s	27 [°] 2 ['] 0 ["]	
21	12 ^h 05 ^m 0 ^s	46 [°] 7 ['] 19 ["]		19 ^h 58 ^m 0 ^s	27 [°] 6 ['] 13 ["]		52 ^h 77 ^m 0 ^s	27 [°] 3 ['] 0 ["]	
31	12 ^h 29 ^m 0 ^s	48 [°] 4 ['] 17 ["]		20 ^h 14 ^m 0 ^s	26 [°] 6 ['] 10 ["]		53 ^h 17 ^m 0 ^s	28 [°] 0 ['] 0 ["]	
Feb. 10	12 ^h 49 ^m 0 ^s	49 [°] 8 ['] 14 ["]		20 ^h 36 ^m 0 ^s	25 [°] 9 ['] 07 ["]		53 ^h 51 ^m 0 ^s	29 [°] 2 ['] 12 ["]	
20	12 ^h 64 ^m 0 ^s	50 [°] 9 ['] 11 ["]		20 ^h 54 ^m 0 ^s	25 [°] 5 ['] 04 ["]		53 ^h 78 ^m 0 ^s	30 [°] 9 ['] 17 ["]	
Mar. 1	12 ^h 76 ^m 0 ^s	51 [°] 8 ['] 09 ["]		20 ^h 67 ^m 0 ^s	25 [°] 5 ['] 00 ["]		53 ^h 98 ^m 0 ^s	32 [°] 9 ['] 20 ["]	
11	12 ^h 83 ^m 0 ^s	52 [°] 5 ['] 07 ["]		20 ^h 75 ^m 0 ^s	25 [°] 8 ['] 03 ["]		54 ^h 11 ^m 0 ^s	35 [°] 2 ['] 23 ["]	
21	12 ^h 86 ^m 0 ^s	52 [°] 9 ['] 04 ["]		20 ^h 80 ^m 0 ^s	26 [°] 4 ['] 06 ["]		54 ^h 16 ^m 0 ^s	37 [°] 7 ['] 25 ["]	
31	12 ^h 85 ^m 0 ^s	53 [°] 1 ['] 02 ["]		20 ^h 80 ^m 0 ^s	27 [°] 1 ['] 07 ["]		54 ^h 15 ^m 0 ^s	40 [°] 3 ['] 26 ["]	
Apr. 10	12 ^h 82 ^m 0 ^s	53 [°] 0 ['] 01 ["]		20 ^h 77 ^m 0 ^s	28 [°] 0 ['] 09 ["]		54 ^h 07 ^m 0 ^s	42 [°] 9 ['] 26 ["]	
20	12 ^h 76 ^m 0 ^s	52 [°] 8 ['] 02 ["]		20 ^h 72 ^m 0 ^s	29 [°] 0 ['] 10 ["]		53 ^h 94 ^m 0 ^s	45 [°] 3 ['] 24 ["]	
30	12 ^h 68 ^m 0 ^s	52 [°] 5 ['] 03 ["]		20 ^h 64 ^m 0 ^s	30 [°] 0 ['] 10 ["]		53 ^h 77 ^m 0 ^s	47 [°] 5 ['] 22 ["]	
May 10	12 ^h 58 ^m 0 ^s	52 [°] 0 ['] 05 ["]		20 ^h 54 ^m 0 ^s	31 [°] 0 ['] 10 ["]		53 ^h 56 ^m 0 ^s	49 [°] 4 ['] 19 ["]	
20	12 ^h 48 ^m 0 ^s	51 [°] 4 ['] 06 ["]		20 ^h 43 ^m 0 ^s	32 [°] 0 ['] 09 ["]		53 ^h 33 ^m 0 ^s	51 [°] 0 ['] 16 ["]	
30	12 ^h 37 ^m 0 ^s	50 [°] 8 ['] 06 ["]		20 ^h 32 ^m 0 ^s	32 [°] 9 ['] 09 ["]		53 ^h 08 ^m 0 ^s	52 [°] 1 ['] 11 ["]	
June 9	12 ^h 26 ^m 0 ^s	50 [°] 2 ['] 06 ["]		20 ^h 21 ^m 0 ^s	33 [°] 7 ['] 08 ["]		52 ^h 83 ^m 0 ^s	52 [°] 9 ['] 08 ["]	
19	12 ^h 15 ^m 0 ^s	49 [°] 5 ['] 07 ["]		20 ^h 09 ^m 0 ^s	34 [°] 4 ['] 25 ["]		52 ^h 58 ^m 0 ^s	53 [°] 2 ['] 03 ["]	
29	12 ^h 05 ^m 0 ^s	48 [°] 8 ['] 07 ["]		19 ^h 98 ^m 0 ^s	34 [°] 9 ['] 05 ["]		52 ^h 34 ^m 0 ^s	53 [°] 0 ['] 02 ["]	
July 9	11 ^h 96 ^m 0 ^s	48 [°] 0 ['] 08 ["]		19 ^h 88 ^m 0 ^s	35 [°] 3 ['] 04 ["]		52 ^h 11 ^m 0 ^s	52 [°] 4 ['] 06 ["]	
19	11 ^h 87 ^m 0 ^s	47 [°] 4 ['] 06 ["]		19 ^h 78 ^m 0 ^s	35 [°] 5 ['] 02 ["]		51 ^h 90 ^m 0 ^s	51 [°] 3 ['] 11 ["]	
29	11 ^h 80 ^m 0 ^s	46 [°] 8 ['] 08 ["]		19 ^h 70 ^m 0 ^s	35 [°] 5 ['] 00 ["]		51 ^h 72 ^m 0 ^s	49 [°] 8 ['] 15 ["]	
Aug. 8	11 ^h 74 ^m 0 ^s	46 [°] 2 ['] 06 ["]		19 ^h 63 ^m 0 ^s	35 [°] 3 ['] 02 ["]		51 ^h 57 ^m 0 ^s	48 [°] 0 ['] 18 ["]	
18	11 ^h 70 ^m 0 ^s	45 [°] 8 ['] 04 ["]		19 ^h 59 ^m 0 ^s	35 [°] 0 ['] 03 ["]		51 ^h 45 ^m 0 ^s	45 [°] 8 ['] 22 ["]	
28	11 ^h 69 ^m 0 ^s	45 [°] 5 ['] 03 ["]		19 ^h 56 ^m 0 ^s	34 [°] 4 ['] 06 ["]		51 ^h 38 ^m 0 ^s	43 [°] 3 ['] 25 ["]	
Sept. 7	11 ^h 70 ^m 0 ^s	45 [°] 4 ['] 01 ["]		19 ^h 56 ^m 0 ^s	33 [°] 6 ['] 08 ["]		51 ^h 35 ^m 0 ^s	40 [°] 5 ['] 28 ["]	
17	11 ^h 75 ^m 0 ^s	45 [°] 5 ['] 03 ["]		19 ^h 56 ^m 0 ^s	33 [°] 6 ['] 09 ["]		51 ^h 35 ^m 0 ^s	40 [°] 5 ['] 30 ["]	
27	11 ^h 84 ^m 0 ^s	45 [°] 8 ['] 03 ["]		19 ^h 67 ^m 0 ^s	31 [°] 3 ['] 12 ["]		51 ^h 38 ^m 0 ^s	37 [°] 5 ['] 34 ["]	
Oct. 7	11 ^h 96 ^m 0 ^s	46 [°] 3 ['] 05 ["]		19 ^h 78 ^m 0 ^s	29 [°] 8 ['] 15 ["]		51 ^h 61 ^m 0 ^s	30 [°] 8 ['] 33 ["]	
17	12 ^h 11 ^m 0 ^s	47 [°] 2 ['] 09 ["]		19 ^h 93 ^m 0 ^s	28 [°] 1 ['] 17 ["]		51 ^h 81 ^m 0 ^s	27 [°] 5 ['] 33 ["]	
27	12 ^h 31 ^m 0 ^s	48 [°] 4 ['] 12 ["]		20 ^h 12 ^m 0 ^s	26 [°] 2 ['] 19 ["]		52 ^h 07 ^m 0 ^s	24 [°] 3 ['] 32 ["]	
Nov. 6	12 ^h 55 ^m 0 ^s	49 [°] 8 ['] 14 ["]		20 ^h 35 ^m 0 ^s	24 [°] 2 ['] 20 ["]		52 ^h 39 ^m 0 ^s	21 [°] 2 ['] 31 ["]	
16	12 ^h 81 ^m 0 ^s	51 [°] 4 ['] 16 ["]		20 ^h 61 ^m 0 ^s	22 [°] 0 ['] 22 ["]		52 ^h 77 ^m 0 ^s	18 [°] 2 ['] 30 ["]	
26	13 ^h 10 ^m 0 ^s	53 [°] 2 ['] 18 ["]		20 ^h 91 ^m 0 ^s	19 [°] 8 ['] 22 ["]		53 ^h 19 ^m 0 ^s	15 [°] 6 ['] 26 ["]	
Dec. 6	13 ^h 42 ^m 0 ^s	55 [°] 2 ['] 20 ["]		21 ^h 23 ^m 0 ^s	17 [°] 6 ['] 22 ["]		53 ^h 65 ^m 0 ^s	13 [°] 4 ['] 22 ["]	
16	13 ^h 75 ^m 0 ^s	57 [°] 3 ['] 21 ["]		21 ^h 56 ^m 0 ^s	15 [°] 5 ['] 21 ["]		54 ^h 14 ^m 0 ^s	11 [°] 6 ['] 18 ["]	
26	14 ^h 07 ^m 0 ^s	59 [°] 4 ['] 21 ["]		21 ^h 89 ^m 0 ^s	13 [°] 5 ['] 20 ["]		54 ^h 63 ^m 0 ^s	10 [°] 2 ['] 14 ["]	
36	14 ^h 38 ^m 0 ^s	61 [°] 4 ['] 20 ["]		22 ^h 22 ^m 0 ^s	11 [°] 7 ['] 18 ["]		55 ^h 11 ^m 0 ^s	9 [°] 4 ['] 08 ["]	

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	ϵ Corvi.			β Chamæleontis.			η Virginis.		
	R. A.		Dec. South.	R. A.		Dec. South.	R. A.		Dec. North.
	h	m	° ' "	h	m	° ' "	h	m	° ' "
	12	3	21 52	12	10	78 34	12	13	0 3
Jan. 1	20 ^s .47	0 ^s .32	59 ^s .0	42 ^s .78	1 ^s .16	23 ^s .6	8 ^s .92	0 ^s .31	63 ^s .1
11	20 ^s .79	0 ^s .30	61 ^s .3	43 ^s .94	1 ^s .06	25 ^s .4	9 ^s .23	0 ^s .29	61 ^s .0
21	21 ^s .09	0 ^s .27	63 ^s .7	45 ^s .00	0 ^s .94	27 ^s .6	9 ^s .52	0 ^s .27	59 ^s .2
31	21 ^s .36	0 ^s .24	66 ^s .1	45 ^s .94	0 ^s .81	30 ^s .4	9 ^s .79	0 ^s .24	57 ^s .5
Feb. 10	21 ^s .60	0 ^s .19	68 ^s .4	46 ^s .75	0 ^s .66	33 ^s .6	10 ^s .03	0 ^s .19	56 ^s .0
20	21 ^s .79	0 ^s .15	70 ^s .7	47 ^s .41	0 ^s .49	37 ^s .0	10 ^s .22	0 ^s .16	54 ^s .8
Mar. 1	21 ^s .94	0 ^s .10	72 ^s .8	47 ^s .90	0 ^s .32	40 ^s .6	10 ^s .38	0 ^s .11	53 ^s .9
11	22 ^s .04	0 ^s .06	74 ^s .7	48 ^s .22	0 ^s .15	44 ^s .4	10 ^s .49	0 ^s .08	53 ^s .2
21	22 ^s .10	0 ^s .03	76 ^s .4	48 ^s .37	0 ^s .02	48 ^s .2	10 ^s .57	0 ^s .03	52 ^s .8
31	22 ^s .13	0 ^s .00	77 ^s .9	48 ^s .35	0 ^s .18	51 ^s .9	10 ^s .60	0 ^s .01	52 ^s .6
Apr. 10	22 ^s .13	0 ^s .04	79 ^s .1	48 ^s .17	0 ^s .32	55 ^s .5	10 ^s .61	0 ^s .02	52 ^s .7
20	22 ^s .09	0 ^s .06	80 ^s .1	47 ^s .85	0 ^s .40	58 ^s .9	10 ^s .59	0 ^s .05	52 ^s .9
30	22 ^s .03	0 ^s .08	80 ^s .9	47 ^s .39	0 ^s .59	62 ^s .0	10 ^s .54	0 ^s .07	53 ^s .3
May 10	21 ^s .95	0 ^s .09	81 ^s .4	46 ^s .80	0 ^s .70	64 ^s .7	10 ^s .47	0 ^s .08	53 ^s .8
20	21 ^s .86	0 ^s .11	81 ^s .6	46 ^s .10	0 ^s .80	67 ^s .0	10 ^s .39	0 ^s .09	54 ^s .3
30	21 ^s .75	0 ^s .12	81 ^s .6	45 ^s .30	0 ^s .88	69 ^s .0	10 ^s .30	0 ^s .10	55 ^s .0
June 9	21 ^s .63	0 ^s .12	81 ^s .4	44 ^s .42	0 ^s .93	70 ^s .5	10 ^s .20	0 ^s .10	55 ^s .7
19	21 ^s .51	0 ^s .12	81 ^s .0	43 ^s .49	0 ^s .96	71 ^s .3	10 ^s .10	0 ^s .11	56 ^s .3
29	21 ^s .39	0 ^s .13	80 ^s .3	42 ^s .53	0 ^s .96	71 ^s .6	9 ^s .99	0 ^s .10	57 ^s .0
July 9	21 ^s .26	0 ^s .12	79 ^s .5	41 ^s .57	0 ^s .94	71 ^s .4	9 ^s .89	0 ^s .10	57 ^s .7
19	21 ^s .14	0 ^s .11	78 ^s .5	40 ^s .63	0 ^s .90	70 ^s .6	9 ^s .79	0 ^s .10	58 ^s .3
29	21 ^s .03	0 ^s .09	77 ^s .3	39 ^s .73	0 ^s .82	69 ^s .4	9 ^s .69	0 ^s .09	58 ^s .9
Aug. 8	20 ^s .94	0 ^s .08	76 ^s .1	38 ^s .91	0 ^s .70	67 ^s .6	9 ^s .60	0 ^s .07	59 ^s .3
18	20 ^s .86	0 ^s .06	74 ^s .8	38 ^s .21	0 ^s .57	65 ^s .4	9 ^s .53	0 ^s .05	59 ^s .7
28	20 ^s .80	0 ^s .03	73 ^s .4	37 ^s .64	0 ^s .41	62 ^s .8	9 ^s .48	0 ^s .03	60 ^s .0
Sept. 7	20 ^s .77	0 ^s .01	72 ^s .2	37 ^s .23	0 ^s .22	59 ^s .9	9 ^s .45	0 ^s .00	60 ^s .1
17	20 ^s .78	0 ^s .04	71 ^s .0	37 ^s .01	0 ^s .01	56 ^s .9	9 ^s .45	0 ^s .04	60 ^s .0
27	20 ^s .82	0 ^s .09	69 ^s .9	37 ^s .00	0 ^s .20	53 ^s .5	9 ^s .49	0 ^s .08	59 ^s .6
Oct. 7	20 ^s .91	0 ^s .14	69 ^s .2	37 ^s .20	0 ^s .42	50 ^s .5	9 ^s .57	0 ^s .12	59 ^s .0
17	21 ^s .05	0 ^s .18	68 ^s .8	37 ^s .62	0 ^s .62	47 ^s .7	9 ^s .69	0 ^s .16	58 ^s .1
27	21 ^s .23	0 ^s .22	68 ^s .7	38 ^s .24	0 ^s .79	45 ^s .2	9 ^s .85	0 ^s .20	57 ^s .0
Nov. 6	21 ^s .45	0 ^s .27	69 ^s .0	39 ^s .03	0 ^s .94	43 ^s .0	10 ^s .05	0 ^s .24	55 ^s .6
16	21 ^s .72	0 ^s .30	69 ^s .7	39 ^s .97	1 ^s .06	41 ^s .4	10 ^s .29	0 ^s .27	54 ^s .0
26	22 ^s .02	0 ^s .32	70 ^s .8	41 ^s .03	1 ^s .16	40 ^s .4	10 ^s .56	0 ^s .30	52 ^s .2
Dec. 6	22 ^s .34	0 ^s .34	72 ^s .2	42 ^s .19	1 ^s .21	40 ^s .0	10 ^s .86	0 ^s .32	50 ^s .2
16	22 ^s .68	0 ^s .34	73 ^s .9	43 ^s .40	1 ^s .21	40 ^s .2	11 ^s .18	0 ^s .33	48 ^s .1
26	23 ^s .02	0 ^s .33	76 ^s .0	44 ^s .61	1 ^s .18	41 ^s .0	11 ^s .51	0 ^s .32	46 ^s .0
36	23 ^s .35	0 ^s .33	78 ^s .2	45 ^s .79	1 ^s .15	42 ^s .5	11 ^s .83	0 ^s .32	43 ^s .9

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α^1 Crucis.			β Corvi.			γ^1 Virginia.					
	R.A.	Dec. South.		R.A.	Dec. South.		R.A.	Dec. South.				
	^h 12	^m 19	[°] 62	['] 21	^h 12	^m 27	[°] 22	['] 39	^h 12	^m 34	[°] 0	['] 43
Jan. 1	17 ^s 22 ^s	0 ^s 56 ^s	37 ^s 9 ^s	2 ^s 0 ^s	27 ^s 21 ^s	0 ^s 34 ^s	50 ^s 0 ^s	2 ^s 1 ^s	58 ^s 02 ^s	0 ^s 32 ^s	29 ^s 7 ^s	2 ^s 0 ^s
11	17 ^s 78 ^s	0 ^s 52 ^s	39 ^s 9 ^s	2 ^s 0 ^s	27 ^s 55 ^s	0 ^s 31 ^s	52 ^s 1 ^s	2 ^s 1 ^s	58 ^s 34 ^s	0 ^s 30 ^s	31 ^s 7 ^s	2 ^s 0 ^s
21	18 ^s 30 ^s	0 ^s 46 ^s	42 ^s 3 ^s	2 ^s 4 ^s	27 ^s 86 ^s	0 ^s 29 ^s	54 ^s 4 ^s	2 ^s 3 ^s	58 ^s 64 ^s	0 ^s 28 ^s	33 ^s 6 ^s	1 ^s 9 ^s
31	18 ^s 76 ^s	0 ^s 41 ^s	45 ^s 1 ^s	2 ^s 8 ^s	28 ^s 15 ^s	0 ^s 25 ^s	56 ^s 8 ^s	2 ^s 4 ^s	58 ^s 92 ^s	0 ^s 25 ^s	35 ^s 4 ^s	1 ^s 8 ^s
Feb. 10	19 ^s 17 ^s	0 ^s 34 ^s	48 ^s 2 ^s	3 ^s 1 ^s	28 ^s 40 ^s	0 ^s 22 ^s	59 ^s 1 ^s	2 ^s 3 ^s	59 ^s 17 ^s	0 ^s 21 ^s	36 ^s 9 ^s	1 ^s 5 ^s
20	19 ^s 51 ^s	0 ^s 26 ^s	51 ^s 5 ^s	3 ^s 3 ^s	28 ^s 62 ^s	0 ^s 17 ^s	61 ^s 3 ^s	2 ^s 1 ^s	59 ^s 38 ^s	0 ^s 17 ^s	38 ^s 2 ^s	1 ^s 3 ^s
Mar. 1	19 ^s 77 ^s	0 ^s 18 ^s	54 ^s 9 ^s	3 ^s 4 ^s	28 ^s 79 ^s	0 ^s 13 ^s	63 ^s 4 ^s	1 ^s 9 ^s	59 ^s 55 ^s	0 ^s 14 ^s	39 ^s 2 ^s	1 ^s 0 ^s
11	19 ^s 95 ^s	0 ^s 12 ^s	58 ^s 4 ^s	3 ^s 5 ^s	28 ^s 92 ^s	0 ^s 10 ^s	65 ^s 3 ^s	1 ^s 8 ^s	59 ^s 69 ^s	0 ^s 09 ^s	39 ^s 9 ^s	0 ^s 7 ^s
21	20 ^s 07 ^s	0 ^s 04 ^s	61 ^s 9 ^s	3 ^s 5 ^s	29 ^s 02 ^s	0 ^s 05 ^s	67 ^s 1 ^s	1 ^s 5 ^s	59 ^s 78 ^s	0 ^s 06 ^s	40 ^s 3 ^s	0 ^s 2 ^s
31	20 ^s 11 ^s	0 ^s 03 ^s	65 ^s 2 ^s	3 ^s 3 ^s	29 ^s 07 ^s	0 ^s 02 ^s	68 ^s 6 ^s	1 ^s 3 ^s	59 ^s 84 ^s	0 ^s 03 ^s	40 ^s 5 ^s	0 ^s 0 ^s
Apr. 10	20 ^s 08 ^s	0 ^s 09 ^s	68 ^s 4 ^s	3 ^s 2 ^s	29 ^s 09 ^s	0 ^s 01 ^s	69 ^s 9 ^s	1 ^s 1 ^s	59 ^s 87 ^s	0 ^s 00 ^s	40 ^s 5 ^s	0 ^s 2 ^s
20	19 ^s 99 ^s	0 ^s 14 ^s	71 ^s 3 ^s	2 ^s 9 ^s	29 ^s 08 ^s	0 ^s 04 ^s	71 ^s 0 ^s	0 ^s 8 ^s	59 ^s 87 ^s	0 ^s 03 ^s	40 ^s 3 ^s	0 ^s 4 ^s
30	19 ^s 85 ^s	0 ^s 19 ^s	74 ^s 0 ^s	2 ^s 7 ^s	29 ^s 04 ^s	0 ^s 06 ^s	71 ^s 8 ^s	0 ^s 6 ^s	59 ^s 84 ^s	0 ^s 05 ^s	39 ^s 9 ^s	0 ^s 4 ^s
May 10	19 ^s 66 ^s	0 ^s 24 ^s	76 ^s 3 ^s	2 ^s 3 ^s	28 ^s 98 ^s	0 ^s 08 ^s	72 ^s 4 ^s	0 ^s 4 ^s	59 ^s 79 ^s	0 ^s 07 ^s	39 ^s 5 ^s	0 ^s 6 ^s
20	19 ^s 42 ^s	0 ^s 28 ^s	78 ^s 2 ^s	1 ^s 9 ^s	28 ^s 90 ^s	0 ^s 09 ^s	72 ^s 8 ^s	0 ^s 1 ^s	59 ^s 72 ^s	0 ^s 08 ^s	38 ^s 9 ^s	0 ^s 6 ^s
30	19 ^s 14 ^s	0 ^s 31 ^s	79 ^s 7 ^s	1 ^s 1 ^s	28 ^s 81 ^s	0 ^s 11 ^s	72 ^s 9 ^s	0 ^s 1 ^s	59 ^s 64 ^s	0 ^s 09 ^s	38 ^s 3 ^s	0 ^s 7 ^s
June 9	18 ^s 83 ^s	0 ^s 33 ^s	80 ^s 8 ^s	0 ^s 6 ^s	28 ^s 70 ^s	0 ^s 12 ^s	72 ^s 8 ^s	0 ^s 3 ^s	59 ^s 55 ^s	0 ^s 10 ^s	37 ^s 6 ^s	0 ^s 7 ^s
19	18 ^s 50 ^s	0 ^s 35 ^s	81 ^s 4 ^s	0 ^s 1 ^s	28 ^s 58 ^s	0 ^s 12 ^s	72 ^s 5 ^s	0 ^s 5 ^s	59 ^s 45 ^s	0 ^s 11 ^s	36 ^s 9 ^s	0 ^s 7 ^s
29	18 ^s 15 ^s	0 ^s 36 ^s	81 ^s 5 ^s	0 ^s 4 ^s	28 ^s 46 ^s	0 ^s 12 ^s	72 ^s 0 ^s	0 ^s 7 ^s	59 ^s 34 ^s	0 ^s 11 ^s	36 ^s 2 ^s	0 ^s 6 ^s
July 9	17 ^s 79 ^s	0 ^s 35 ^s	81 ^s 1 ^s	0 ^s 9 ^s	28 ^s 34 ^s	0 ^s 13 ^s	71 ^s 3 ^s	0 ^s 9 ^s	59 ^s 23 ^s	0 ^s 10 ^s	35 ^s 6 ^s	0 ^s 6 ^s
19	17 ^s 44 ^s	0 ^s 33 ^s	80 ^s 2 ^s	1 ^s 4 ^s	28 ^s 21 ^s	0 ^s 12 ^s	70 ^s 4 ^s	1 ^s 0 ^s	59 ^s 13 ^s	0 ^s 11 ^s	35 ^s 0 ^s	0 ^s 6 ^s
29	17 ^s 11 ^s	0 ^s 31 ^s	78 ^s 8 ^s	1 ^s 8 ^s	28 ^s 09 ^s	0 ^s 12 ^s	69 ^s 4 ^s	1 ^s 2 ^s	59 ^s 02 ^s	0 ^s 10 ^s	34 ^s 4 ^s	0 ^s 5 ^s
Aug. 8	16 ^s 80 ^s	0 ^s 27 ^s	77 ^s 0 ^s	2 ^s 1 ^s	27 ^s 97 ^s	0 ^s 10 ^s	68 ^s 2 ^s	1 ^s 2 ^s	58 ^s 92 ^s	0 ^s 09 ^s	33 ^s 9 ^s	0 ^s 4 ^s
18	16 ^s 53 ^s	0 ^s 22 ^s	74 ^s 9 ^s	2 ^s 4 ^s	27 ^s 87 ^s	0 ^s 08 ^s	67 ^s 0 ^s	1 ^s 3 ^s	58 ^s 83 ^s	0 ^s 07 ^s	33 ^s 5 ^s	0 ^s 2 ^s
28	16 ^s 31 ^s	0 ^s 15 ^s	72 ^s 5 ^s	2 ^s 6 ^s	27 ^s 79 ^s	0 ^s 05 ^s	65 ^s 7 ^s	1 ^s 2 ^s	58 ^s 76 ^s	0 ^s 05 ^s	33 ^s 3 ^s	0 ^s 1 ^s
Sept. 7	16 ^s 16 ^s	0 ^s 08 ^s	69 ^s 9 ^s	2 ^s 7 ^s	27 ^s 74 ^s	0 ^s 02 ^s	64 ^s 5 ^s	1 ^s 2 ^s	58 ^s 71 ^s	0 ^s 02 ^s	33 ^s 2 ^s	0 ^s 0 ^s
17	16 ^s 08 ^s	0 ^s 00 ^s	67 ^s 2 ^s	2 ^s 7 ^s	27 ^s 72 ^s	0 ^s 02 ^s	63 ^s 3 ^s	1 ^s 0 ^s	58 ^s 69 ^s	0 ^s 01 ^s	33 ^s 2 ^s	0 ^s 3 ^s
27	{ 15. 00 }	{ 00. 00 }	{ 64. 1 }	{ 2. 7 }	27 ^s 74 ^s	0 ^s 07 ^s	62 ^s 3 ^s	0 ^s 8 ^s	58 ^s 70 ^s	0 ^s 06 ^s	33 ^s 5 ^s	0 ^s 6 ^s
Oct. 7	16 ^s 18 ^s	0 ^s 19 ^s	61 ^s 5 ^s	2 ^s 4 ^s	27 ^s 81 ^s	0 ^s 11 ^s	61 ^s 5 ^s	0 ^s 5 ^s	58 ^s 76 ^s	0 ^s 09 ^s	34 ^s 1 ^s	0 ^s 8 ^s
17	16 ^s 37 ^s	0 ^s 28 ^s	59 ^s 1 ^s	2 ^s 1 ^s	27 ^s 92 ^s	0 ^s 16 ^s	61 ^s 0 ^s	0 ^s 2 ^s	58 ^s 85 ^s	0 ^s 14 ^s	34 ^s 9 ^s	1 ^s 0 ^s
27	16 ^s 65 ^s	0 ^s 37 ^s	57 ^s 0 ^s	1 ^s 6 ^s	28 ^s 08 ^s	0 ^s 20 ^s	60 ^s 8 ^s	0 ^s 1 ^s	58 ^s 99 ^s	0 ^s 19 ^s	35 ^s 9 ^s	1 ^s 3 ^s
Nov. 6	17 ^s 02 ^s	0 ^s 43 ^s	55 ^s 4 ^s	1 ^s 2 ^s	28 ^s 28 ^s	0 ^s 25 ^s	60 ^s 9 ^s	0 ^s 6 ^s	59 ^s 18 ^s	0 ^s 22 ^s	37 ^s 2 ^s	1 ^s 6 ^s
16	17 ^s 45 ^s	0 ^s 50 ^s	54 ^s 2 ^s	0 ^s 6 ^s	28 ^s 53 ^s	0 ^s 29 ^s	61 ^s 5 ^s	0 ^s 9 ^s	59 ^s 40 ^s	0 ^s 26 ^s	38 ^s 8 ^s	1 ^s 8 ^s
26	17 ^s 95 ^s	0 ^s 55 ^s	53 ^s 6 ^s	0 ^s 1 ^s	28 ^s 82 ^s	0 ^s 31 ^s	62 ^s 4 ^s	1 ^s 3 ^s	59 ^s 66 ^s	0 ^s 29 ^s	40 ^s 6 ^s	1 ^s 9 ^s
Dec. 6	18 ^s 50 ^s	0 ^s 57 ^s	53 ^s 5 ^s	0 ^s 6 ^s	29 ^s 13 ^s	0 ^s 33 ^s	63 ^s 7 ^s	1 ^s 6 ^s	59 ^s 95 ^s	0 ^s 31 ^s	42 ^s 5 ^s	2 ^s 1 ^s
16	19 ^s 07 ^s	0 ^s 58 ^s	54 ^s 1 ^s	1 ^s 1 ^s	29 ^s 46 ^s	0 ^s 35 ^s	65 ^s 3 ^s	1 ^s 8 ^s	60 ^s 26 ^s	0 ^s 32 ^s	44 ^s 6 ^s	2 ^s 1 ^s
26	19 ^s 65 ^s	0 ^s 57 ^s	55 ^s 2 ^s	1 ^s 7 ^s	29 ^s 81 ^s	0 ^s 34 ^s	67 ^s 1 ^s	2 ^s 1 ^s	60 ^s 58 ^s	0 ^s 32 ^s	46 ^s 7 ^s	2 ^s 1 ^s
36	20 ^s 22 ^s	0 ^s 57 ^s	56 ^s 9 ^s	1 ^s 7 ^s	30 ^s 15 ^s	0 ^s 34 ^s	69 ^s 2 ^s	2 ^s 1 ^s	60 ^s 90 ^s	0 ^s 32 ^s	48 ^s 8 ^s	2 ^s 1 ^s

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	12 Canum Venaticor.		θ Virginis.		α Virginis. (Spica)	
	R. A.	Dec. North.	R. A.	Dec. South.	R. A.	Dec. South.
	^h 12 49	[°] 39 1	^h 13 3	[°] 4 49	^h 13 18	[°] 10 28
Jan. 1	49° 97' 0.38	44° 9' 1.6	6° 54' 0.32	56° 0' 2.0	13° 95' 0.32	10° 2' 2.0
11	50° 35' 0.38	43° 3' 1.0	6° 86' 0.31	58° 0' 2.0	14° 27' 0.32	12° 2' 2.0
21	50° 73' 0.35	42° 3' 0.5	7° 17' 0.29	60° 0' 1.8	14° 59' 0.30	14° 2' 1.9
31	51° 08' 0.31	41° 8' 0.0	7° 46' 0.27	61° 8' 1.7	14° 89' 0.28	16° 1' 1.8
Feb. 10	51° 39' 0.28	41° 8' 0.6	7° 73' 0.24	63° 5' 1.5	15° 17' 0.25	17° 9' 1.6
20	51° 67' 0.23	42° 4' 1.0	7° 97' 0.20	65° 0' 1.2	15° 42' 0.21	19° 5' 1.5
Mar. 1	51° 90' 0.18	43° 4' 1.4	8° 17' 0.16	66° 2' 0.9	15° 63' 0.17	21° 0' 1.2
11	52° 08' 0.13	44° 8' 1.8	8° 33' 0.12	67° 1' 0.7	15° 80' 0.14	22° 2' 1.0
21	52° 21' 0.08	46° 6' 2.0	8° 45' 0.09	67° 8' 0.4	15° 94' 0.11	23° 2' 0.7
31	52° 29' 0.03	48° 6' 2.1	8° 54' 0.06	68° 2' 0.2	16° 05' 0.07	23° 9' 0.6
Apr. 10	52° 32' 0.01	50° 7' 2.3	8° 60' 0.02	68° 4' 0.1	16° 12' 0.05	24° 5' 0.3
20	52° 31' 0.05	53° 0' 2.2	8° 62' 0.00	68° 5' 0.2	16° 17' 0.01	24° 8' 0.2
30	52° 26' 0.08	55° 2' 2.1	8° 62' 0.02	68° 3' 0.3	16° 18' 0.01	25° 0' 0.0
May 10	52° 18' 0.11	57° 3' 1.9	8° 60' 0.04	68° 0' 0.4	16° 17' 0.03	25° 0' 0.1
20	52° 07' 0.13	59° 2' 1.7	8° 56' 0.07	67° 6' 0.5	16° 14' 0.05	24° 9' 0.3
30	51° 94' 0.15	60° 9' 1.3	8° 49' 0.08	67° 1' 0.5	16° 09' 0.07	24° 6' 0.3
June 9	51° 79' 0.16	62° 2' 1.1	8° 41' 0.09	66° 6' 0.6	16° 02' 0.09	24° 3' 0.5
19	51° 63' 0.17	63° 3' 0.7	8° 32' 0.10	66° 0' 0.7	15° 93' 0.10	23° 8' 0.5
29	51° 46' 0.17	64° 0' 0.3	8° 22' 0.11	65° 3' 0.6	15° 83' 0.11	23° 3' 0.6
July 9	51° 29' 0.17	64° 3' 0.1	8° 11' 0.12	64° 7' 0.6	15° 72' 0.12	22° 7' 0.6
19	51° 12' 0.17	64° 2' 0.4	7° 99' 0.11	64° 1' 0.7	15° 60' 0.12	22° 1' 0.7
29	50° 95' 0.15	63° 8' 0.9	7° 88' 0.11	63° 4' 0.6	15° 48' 0.13	21° 4' 0.7
Aug. 8	50° 80' 0.14	62° 9' 1.2	7° 77' 0.11	62° 8' 0.5	15° 35' 0.11	20° 7' 0.7
18	50° 66' 0.12	61° 7' 1.5	7° 66' 0.09	62° 3' 0.4	15° 24' 0.11	20° 0' 0.6
28	50° 54' 0.09	60° 2' 1.9	7° 57' 0.07	61° 9' 0.3	15° 13' 0.09	19° 4' 0.5
Sept. 7	50° 45' 0.05	58° 3' 2.2	7° 50' 0.05	61° 6' 0.1	15° 04' 0.06	18° 9' 0.4
17	50° 40' 0.02	56° 1' 2.4	7° 45' 0.01	61° 5' 0.0	14° 98' 0.03	18° 5' 0.3
27	50° 38' 0.03	53° 7' 3.0	7° 44' 0.02	61° 5' 0.2	14° 95' 0.01	18° 2' 0.1
Oct. 7	50° 41' 0.08	50° 7' 3.0	7° 46' 0.07	61° 7' 0.6	14° 96' 0.06	18° 1' 0.2
17	50° 49' 0.14	47° 7' 3.0	7° 53' 0.12	62° 3' 0.8	15° 02' 0.10	18° 3' 0.4
27	50° 63' 0.18	44° 7' 3.1	7° 65' 0.16	63° 1' 1.1	15° 12' 0.15	18° 7' 0.7
Nov. 6	50° 81' 0.24	41° 6' 3.1	7° 81' 0.20	64° 2' 1.3	15° 27' 0.19	19° 4' 1.0
16	51° 05' 0.28	38° 5' 3.0	8° 01' 0.24	65° 5' 1.6	15° 46' 0.24	20° 4' 1.3
26	51° 33' 0.32	35° 5' 2.8	8° 25' 0.28	67° 1' 1.7	15° 70' 0.27	21° 7' 1.5
Dec. 6	51° 65' 0.36	32° 7' 2.5	8° 53' 0.30	68° 8' 2.0	15° 97' 0.30	23° 2' 1.7
16	52° 01' 0.38	30° 2' 2.2	8° 83' 0.32	70° 8' 2.0	16° 27' 0.32	24° 9' 1.9
26	52° 39' 0.39	28° 0' 1.8	9° 15' 0.33	72° 8' 2.1	16° 59' 0.33	26° 8' 2.0
36	52° 78' 0.39	26° 2' 1.8	9° 48' 0.33	74° 9' 2.1	16° 92' 0.33	28° 8' 2.0

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	ζ Virginis.			η Ursæ Majoris.			η Bootis.		
	R.A.	Dec. North.		R.A.	Dec. North.		R.A.	Dec. North.	
	h m	° '		h m	° '		h m	° '	
	13 27	0 4		13 42	49 57		13 48	19 3	
Jan. 1	57° 49' 0 ³²	52° 7' 2 ⁰		18° 69' 0 ⁴³	72° 5' 1 ⁸		23° 01' 0 ³³	35° 9' 2 ¹	
11	57° 81' 0 ³¹	50° 7' 1 ⁹		19° 12' 0 ⁴⁴	70° 7' 1 ³		23° 34' 0 ³³	33° 8' 1 ⁸	
21	58° 12' 0 ³⁰	48° 8' 1 ⁷		19° 56' 0 ⁴²	69° 4' 0 ⁸		23° 67' 0 ³²	32° 0' 1 ⁴	
31	58° 42' 0 ²⁸	47° 1' 1 ⁵		19° 98' 0 ⁴⁰	68° 6' 0 ¹		23° 99' 0 ³⁰	30° 6' 1 ¹	
Feb. 10	58° 70' 0 ²⁵	45° 6' 1 ³		20° 38' 0 ³⁷	68° 5' 0 ⁵		24° 29' 0 ²⁷	29° 5' 0 ⁶	
20	58° 95' 0 ²²	44° 3' 1 ⁰		20° 75' 0 ³²	69° 0' 1 ⁰		24° 56' 0 ²⁴	28° 9' 0 ²	
Mar. 1	59° 17' 0 ¹⁸	43° 3' 0 ⁶		21° 07' 0 ²⁷	70° 0' 1 ⁶		24° 80' 0 ²¹	28° 7' 0 ²	
11	59° 35' 0 ¹⁵	42° 7' 0 ⁴		21° 34' 0 ²²	71° 6' 2 ⁰		25° 01' 0 ¹⁷	28° 9' 0 ⁶	
21	59° 50' 0 ¹¹	42° 3' 0 ²		21° 56' 0 ¹⁶	73° 6' 2 ⁴		25° 18' 0 ¹³	29° 5' 1 ⁰	
31	59° 61' 0 ⁰⁸	42° 1' 0 ¹		21° 72' 0 ¹¹	76° 0' 2 ⁶		25° 31' 0 ¹⁰	30° 5' 1 ²	
Apr. 10	59° 69' 0 ⁰⁵	42° 2' 0 ³		21° 83' 0 ⁰⁴	78° 6' 2 ⁷		25° 41' 0 ⁰⁷	31° 7' 1 ⁴	
20	59° 74' 0 ⁰²	42° 5' 0 ⁵		21° 87' 0 ⁰¹	81° 3' 2 ⁷		25° 48' 0 ⁰³	33° 1' 1 ⁵	
30	59° 76' 0 ⁰⁰	43° 0' 0 ⁶		21° 86' 0 ⁰⁵	84° 0' 2 ⁶		25° 51' 0 ⁰⁰	34° 6' 1 ⁵	
May 10	59° 76' 0 ⁰³	43° 6' 0 ⁷		21° 81' 0 ¹⁰	86° 6' 2 ⁵		25° 51' 0 ⁰²	36° 1' 1 ⁶	
20	59° 73' 0 ⁰⁴	44° 3' 0 ⁷		21° 71' 0 ¹⁴	89° 1' 2 ³		25° 49' 0 ⁰⁵	37° 7' 1 ⁵	
30	59° 69' 0 ⁰⁷	45° 0' 0 ⁷		21° 57' 0 ¹⁷	91° 4' 1 ⁹		25° 44' 0 ⁰⁷	39° 2' 1 ⁴	
June 9	59° 62' 0 ⁰⁸	45° 7' 0 ⁸		21° 40' 0 ¹⁹	93° 3' 1 ⁵		25° 37' 0 ⁰⁹	40° 6' 1 ²	
19	59° 54' 0 ¹⁰	46° 4' 0 ⁷		21° 21' 0 ²²	94° 8' 1 ¹		25° 28' 0 ¹⁰	41° 8' 1 ¹	
29	59° 44' 0 ¹¹	47° 2' 0 ⁶		20° 99' 0 ²³	95° 9' 0 ⁷		25° 18' 0 ¹²	42° 9' 0 ⁸	
July 9	59° 33' 0 ¹²	47° 8' 0 ⁷		20° 76' 0 ²⁴	96° 6' 0 ²		25° 06' 0 ¹³	43° 7' 0 ⁶	
19	59° 21' 0 ¹²	48° 5' 0 ⁵		20° 52' 0 ²⁵	96° 8' 0 ²		24° 93' 0 ¹⁴	44° 3' 0 ⁴	
29	59° 09' 0 ¹²	49° 0' 0 ⁴		20° 27' 0 ²⁴	96° 6' 0 ⁷		24° 79' 0 ¹⁵	44° 7' 0 ⁰	
Aug. 8	58° 97' 0 ¹²	49° 4' 0 ⁴		20° 03' 0 ²³	95° 9' 1 ¹		24° 64' 0 ¹⁴	44° 7' 0 ²	
18	58° 85' 0 ¹¹	49° 8' 0 ²		19° 80' 0 ²²	94° 8' 1 ⁶		24° 50' 0 ¹²	44° 5' 0 ⁴	
28	58° 74' 0 ⁰⁹	50° 0' 0 ⁰		19° 58' 0 ¹⁹	93° 2' 2 ⁰		24° 38' 0 ¹²	44° 1' 0 ⁸	
Sept. 7	58° 65' 0 ⁰⁷	50° 0' 0 ¹		19° 39' 0 ¹⁵	91° 2' 2 ⁴		24° 26' 0 ¹⁰	43° 3' 1 ⁰	
17	58° 58' 0 ⁰⁴	49° 9' 0 ³		19° 24' 0 ¹¹	88° 8' 2 ⁷		24° 16' 0 ⁰⁶	42° 3' 1 ⁴	
27	58° 54' 0 ⁰⁰	49° 6' 0 ⁵		19° 13' 0 ⁰⁷	86° 1' 3 ⁰		24° 10' 0 ⁰³	40° 9' 1 ⁶	
Oct. 7	58° 54' 0 ⁰⁵	49° 1' 0 ⁹		19° 06' 0 ⁰¹	83° 1' 3 ³		24° 07' 0 ⁰¹	39° 3' 1 ⁹	
17	58° 59' 0 ⁰⁸	48° 2' 1 ¹		19° 05' 0 ⁰⁶	79° 8' 3 ⁸		24° 08' 0 ⁰⁶	37° 4' 2 ³	
27	58° 67' 0 ¹⁴	47° 1' 1 ³		19° 11' 0 ¹²	76° 0' 3 ⁵		24° 14' 0 ¹²	35° 1' 2 ³	
Nov. 6	58° 81' 0 ¹⁸	45° 8' 1 ⁵		19° 23' 0 ¹⁹	72° 5' 3 ⁵		24° 26' 0 ¹⁶	32° 8' 2 ⁵	
16	58° 99' 0 ²²	44° 3' 1 ⁷		19° 42' 0 ²⁵	69° 0' 3 ⁵		24° 42' 0 ²⁰	30° 3' 2 ⁶	
26	59° 21' 0 ²⁶	42° 6' 1 ⁹		19° 67' 0 ³⁰	65° 5' 3 ³		24° 62' 0 ²⁴	27° 7' 2 ⁷	
Dec. 6	59° 47' 0 ²⁹	40° 7' 2 ¹		19° 97' 0 ³⁶	62° 2' 3 ⁰		24° 86' 0 ²⁹	25° 0' 2 ⁶	
16	59° 76' 0 ³¹	38° 6' 2 ¹		20° 33' 0 ⁴⁰	59° 2' 2 ⁶		25° 15' 0 ³¹	22° 4' 2 ⁴	
26	60° 07' 0 ³²	36° 5' 2 ¹		20° 73' 0 ⁴²	56° 6' 2 ¹		25° 46' 0 ³²	20° 0' 2 ³	
36	60° 39' 0 ³²	34° 4' 2 ¹		21° 15' 0 ⁴²	54° 5' 2 ¹		25° 78' 0 ³²	17° 7' 2 ³	

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	β Centauri.		τ Virginis.		α Bootis. (Arcturus)	
	R.A.	Dec. South.	R.A.	Dec. North.	R.A.	Dec. North
	^h ^m	[°] [']	^h ^m	[°] [']	^h ^m	[°] [']
	13 54	59 43	13 54	2 10	14 9	19 51
Jan. 1	31 ^s 51 ^s	41 ^s 9 ^s	54 ^s 94 ^s	67 ^s 9 ^s	37 ^s 37 ^s	74 ^s 2 ^s
11	32 ^m 06 ^m 0 ^s 55 ^s	42 ^m 7 ^m 0 ^s 8 ^s	55 ^m 26 ^m 0 ^s 32 ^s	65 ^m 9 ^m 2 ^s 0 ^s	37 ^m 69 ^m 0 ^s 32 ^s	72 ^m 0 ^m 2 ^s 2 ^s
21	32 ^m 61 ^m 0 ^s 55 ^s	43 ^m 9 ^m 1 ^s 2 ^s	55 ^m 57 ^m 0 ^s 31 ^s	64 ^m 0 ^m 1 ^s 9 ^s	38 ^m 01 ^m 0 ^s 32 ^s	70 ^m 0 ^m 2 ^s 0 ^s
31	33 ^m 15 ^m 0 ^s 54 ^s	45 ^m 6 ^m 1 ^s 7 ^s	55 ^m 88 ^m 0 ^s 31 ^s	62 ^m 3 ^m 1 ^s 7 ^s	38 ^m 33 ^m 0 ^s 32 ^s	68 ^m 4 ^m 1 ^s 6 ^s
Feb. 10	33 ^m 66 ^m 0 ^s 51 ^s	47 ^m 7 ^m 2 ^s 1 ^s	56 ^m 17 ^m 0 ^s 29 ^s	60 ^m 8 ^m 1 ^s 5 ^s	38 ^m 64 ^m 0 ^s 31 ^s	67 ^m 3 ^m 1 ^s 1 ^s
20	34 ^m 12 ^m 0 ^s 46 ^s	50 ^m 1 ^m 2 ^s 4 ^s	56 ^m 44 ^m 0 ^s 27 ^s	59 ^m 7 ^m 1 ^s 1 ^s	38 ^m 92 ^m 0 ^s 28 ^s	66 ^m 5 ^m 0 ^s 8 ^s
Mar. 1	34 ^m 54 ^m 0 ^s 42 ^s	52 ^m 8 ^m 2 ^s 7 ^s	56 ^m 67 ^m 0 ^s 23 ^s	58 ^m 8 ^m 0 ^s 9 ^s	39 ^m 17 ^m 0 ^s 25 ^s	66 ^m 2 ^m 0 ^s 3 ^s
11	34 ^m 90 ^m 0 ^s 36 ^s	55 ^m 6 ^m 2 ^s 8 ^s	56 ^m 88 ^m 0 ^s 21 ^s	58 ^m 2 ^m 0 ^s 6 ^s	39 ^m 40 ^m 0 ^s 23 ^s	66 ^m 4 ^m 0 ^s 2 ^s
21	35 ^m 20 ^m 0 ^s 30 ^s	58 ^m 5 ^m 2 ^s 9 ^s	57 ^m 05 ^m 0 ^s 17 ^s	57 ^m 9 ^m 0 ^s 3 ^s	39 ^m 59 ^m 0 ^s 19 ^s	67 ^m 0 ^m 0 ^s 6 ^s
31	35 ^m 45 ^m 0 ^s 25 ^s	61 ^m 5 ^m 3 ^s 0 ^s	57 ^m 19 ^m 0 ^s 11 ^s	57 ^m 9 ^m 0 ^s 0 ^s	39 ^m 74 ^m 0 ^s 15 ^s	67 ^m 9 ^m 0 ^s 9 ^s
Apr. 10	35 ^m 64 ^m 0 ^s 19 ^s	64 ^m 5 ^m 3 ^s 0 ^s	57 ^m 30 ^m 0 ^s 0 ^s	58 ^m 2 ^m 0 ^s 3 ^s	39 ^m 86 ^m 0 ^s 12 ^s	69 ^m 1 ^m 1 ^s 2 ^s
20	35 ^m 76 ^m 0 ^s 12 ^s	67 ^m 4 ^m 2 ^s 9 ^s	57 ^m 37 ^m 0 ^s 07 ^s	58 ^m 6 ^m 0 ^s 4 ^s	39 ^m 94 ^m 0 ^s 08 ^s	70 ^m 5 ^m 1 ^s 4 ^s
30	35 ^m 82 ^m 0 ^s 06 ^s	70 ^m 2 ^m 2 ^s 8 ^s	57 ^m 42 ^m 0 ^s 05 ^s	59 ^m 2 ^m 0 ^s 6 ^s	39 ^m 99 ^m 0 ^s 05 ^s	72 ^m 0 ^m 1 ^s 5 ^s
May 10	35 ^m 83 ^m 0 ^s 01 ^s	72 ^m 9 ^m 2 ^s 7 ^s	57 ^m 44 ^m 0 ^s 02 ^s	60 ^m 0 ^m 0 ^s 8 ^s	40 ^m 01 ^m 0 ^s 02 ^s	73 ^m 6 ^m 1 ^s 6 ^s
20	35 ^m 78 ^m 0 ^s 05 ^s	72 ^m 9 ^m 2 ^s 4 ^s	57 ^m 44 ^m 0 ^s 01 ^s	60 ^m 0 ^m 0 ^s 8 ^s	40 ^m 01 ^m 0 ^s 01 ^s	73 ^m 6 ^m 1 ^s 7 ^s
30	35 ^m 78 ^m 0 ^s 10 ^s	75 ^m 3 ^m 2 ^s 1 ^s	57 ^m 43 ^m 0 ^s 03 ^s	60 ^m 8 ^m 0 ^s 9 ^s	40 ^m 00 ^m 0 ^s 03 ^s	75 ^m 3 ^m 1 ^s 5 ^s
June 9	35 ^m 68 ^m 0 ^s 15 ^s	77 ^m 4 ^m 1 ^s 8 ^s	57 ^m 40 ^m 0 ^s 05 ^s	61 ^m 7 ^m 0 ^s 8 ^s	39 ^m 97 ^m 0 ^s 06 ^s	76 ^m 8 ^m 1 ^s 5 ^s
19	35 ^m 53 ^m 0 ^s 20 ^s	79 ^m 2 ^m 1 ^s 5 ^s	57 ^m 35 ^m 0 ^s 07 ^s	62 ^m 5 ^m 0 ^s 8 ^s	39 ^m 91 ^m 0 ^s 08 ^s	78 ^m 3 ^m 1 ^s 3 ^s
29	35 ^m 33 ^m 0 ^s 25 ^s	80 ^m 7 ^m 1 ^s 0 ^s	57 ^m 28 ^m 0 ^s 08 ^s	63 ^m 3 ^m 0 ^s 7 ^s	39 ^m 83 ^m 0 ^s 10 ^s	79 ^m 6 ^m 1 ^s 2 ^s
July 9	35 ^m 08 ^m 0 ^s 28 ^s	81 ^m 7 ^m 0 ^s 6 ^s	57 ^m 20 ^m 0 ^s 10 ^s	64 ^m 0 ^m 0 ^s 8 ^s	39 ^m 73 ^m 0 ^s 12 ^s	80 ^m 8 ^m 0 ^s 9 ^s
19	34 ^m 50 ^m 0 ^s 30 ^s	82 ^m 3 ^m 0 ^s 2 ^s	57 ^m 10 ^m 0 ^s 12 ^s	64 ^m 8 ^m 0 ^s 6 ^s	39 ^m 61 ^m 0 ^s 14 ^s	81 ^m 7 ^m 0 ^s 7 ^s
29	34 ^m 17 ^m 0 ^s 33 ^s	82 ^m 5 ^m 0 ^s 3 ^s	56 ^m 98 ^m 0 ^s 13 ^s	65 ^m 4 ^m 0 ^s 6 ^s	39 ^m 47 ^m 0 ^s 14 ^s	82 ^m 4 ^m 0 ^s 4 ^s
Aug. 8	33 ^m 84 ^m 0 ^s 33 ^s	82 ^m 2 ^m 0 ^s 7 ^s	56 ^m 85 ^m 0 ^s 13 ^s	66 ^m 0 ^m 0 ^s 4 ^s	39 ^m 33 ^m 0 ^s 15 ^s	82 ^m 8 ^m 0 ^s 1 ^s
18	33 ^m 52 ^m 0 ^s 32 ^s	81 ^m 5 ^m 1 ^s 2 ^s	56 ^m 72 ^m 0 ^s 13 ^s	66 ^m 4 ^m 0 ^s 3 ^s	39 ^m 18 ^m 0 ^s 15 ^s	82 ^m 9 ^m 0 ^s 2 ^s
28	33 ^m 21 ^m 0 ^s 31 ^s	80 ^m 3 ^m 1 ^s 5 ^s	56 ^m 59 ^m 0 ^s 12 ^s	66 ^m 7 ^m 0 ^s 1 ^s	39 ^m 03 ^m 0 ^s 14 ^s	82 ^m 7 ^m 0 ^s 4 ^s
Sept. 7	32 ^m 94 ^m 0 ^s 27 ^s	78 ^m 8 ^m 1 ^s 8 ^s	56 ^m 47 ^m 0 ^s 11 ^s	66 ^m 8 ^m 0 ^s 0 ^s	38 ^m 89 ^m 0 ^s 14 ^s	82 ^m 3 ^m 0 ^s 8 ^s
17	32 ^m 72 ^m 0 ^s 22 ^s	77 ^m 0 ^m 2 ^s 0 ^s	56 ^m 36 ^m 0 ^s 09 ^s	66 ^m 8 ^m 0 ^s 2 ^s	38 ^m 75 ^m 0 ^s 12 ^s	81 ^m 5 ^m 1 ^s 0 ^s
27	32 ^m 56 ^m 0 ^s 16 ^s	75 ^m 0 ^m 2 ^s 3 ^s	56 ^m 27 ^m 0 ^s 07 ^s	66 ^m 6 ^m 0 ^s 5 ^s	38 ^m 63 ^m 0 ^s 09 ^s	80 ^m 5 ^m 1 ^s 4 ^s
Oct. 7	32 ^m 47 ^m 0 ^s 09 ^s	72 ^m 7 ^m 2 ^s 4 ^s	56 ^m 20 ^m 0 ^s 03 ^s	66 ^m 1 ^m 0 ^s 6 ^s	38 ^m 54 ^m 0 ^s 05 ^s	79 ^m 1 ^m 1 ^s 6 ^s
17	32 ^m 47 ^m 0 ^s 00 ^s	70 ^m 3 ^m 2 ^s 5 ^s	56 ^m 17 ^m 0 ^s 02 ^s	65 ^m 5 ^m 0 ^s 9 ^s	38 ^m 49 ^m 0 ^s 02 ^s	77 ^m 5 ^m 1 ^s 9 ^s
27	32 ^m 56 ^m 0 ^s 09 ^s	67 ^m 8 ^m 2 ^s 6 ^s	56 ^m 19 ^m 0 ^s 06 ^s	64 ^m 6 ^m 1 ^s 3 ^s	38 ^m 47 ^m 0 ^s 03 ^s	75 ^m 6 ^m 2 ^s 2 ^s
Nov. 6	32 ^m 74 ^m 0 ^s 18 ^s	65 ^m 2 ^m 2 ^s 1 ^s	56 ^m 25 ^m 0 ^s 11 ^s	63 ^m 3 ^m 1 ^s 4 ^s	38 ^m 39 ^m 0 ^s 08 ^s	74 ^m 4 ^m 2 ^s 4 ^s
16	33 ^m 02 ^m 0 ^s 28 ^s	63 ^m 1 ^m 1 ^s 8 ^s	56 ^m 36 ^m 0 ^s 15 ^s	61 ^m 9 ^m 1 ^s 6 ^s	38 ^m 59 ^m 0 ^s 14 ^s	70 ^m 7 ^m 2 ^s 5 ^s
26	33 ^m 38 ^m 0 ^s 36 ^s	61 ^m 3 ^m 1 ^s 4 ^s	56 ^m 51 ^m 0 ^s 20 ^s	60 ^m 3 ^m 1 ^s 8 ^s	38 ^m 73 ^m 0 ^s 18 ^s	68 ^m 2 ^m 2 ^s 7 ^s
Dec. 6	33 ^m 80 ^m 0 ^s 42 ^s	59 ^m 9 ^m 1 ^s 0 ^s	56 ^m 71 ^m 0 ^s 24 ^s	58 ^m 5 ^m 2 ^s 0 ^s	38 ^m 91 ^m 0 ^s 23 ^s	65 ^m 5 ^m 2 ^s 8 ^s
16	34 ^m 28 ^m 0 ^s 48 ^s	58 ^m 9 ^m 0 ^s 5 ^s	56 ^m 95 ^m 0 ^s 28 ^s	56 ^m 5 ^m 2 ^s 1 ^s	39 ^m 14 ^m 0 ^s 26 ^s	62 ^m 7 ^m 2 ^s 7 ^s
26	34 ^m 80 ^m 0 ^s 52 ^s	58 ^m 4 ^m 0 ^s 0 ^s	57 ^m 23 ^m 0 ^s 30 ^s	54 ^m 4 ^m 2 ^s 1 ^s	39 ^m 40 ^m 0 ^s 29 ^s	60 ^m 0 ^m 2 ^s 6 ^s
36	35 ^m 35 ^m 0 ^s 55 ^s	58 ^m 4 ^m 0 ^s 5 ^s	57 ^m 53 ^m 0 ^s 31 ^s	52 ^m 3 ^m 2 ^s 1 ^s	39 ^m 69 ^m 0 ^s 32 ^s	57 ^m 4 ^m 2 ^s 4 ^s

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	ρ Bootis.		α Centauri.		ϵ Bootis.	
	R. A.	Dec. North.	R. A.	Dec. South.	R. A.	Dec. North.
	^h 14 ^m 26	[°] 30 ['] 56	^h 14 ^m 30	[°] 60 ['] 16	^h 14 ^m 39	[°] 27 ['] 37
Jan. 1	7 ^s 18 ^s	64 ^s 6 ^s	39 ^s 31 ^s	46 ^s 7 ^s	11 ^s 96 ^s	53 ^s 2 ^s
11	7 ^s 51 ^s 0 ^s 33	62 ^s 2 ^s 4 ^s	39 ^s 85 ^s 0 ^s 54	46 ^s 9 ^s 0 ^s 2	12 ^s 28 ^s 0 ^s 32	50 ^s 8 ^s 2 ^s 4
21	7 ^s 85 ^s 0 ^s 34	60 ^s 3 ^s 1 ^s 9	40 ^s 40 ^s 0 ^s 55	47 ^s 7 ^s 1 ^s 2	12 ^s 61 ^s 0 ^s 33	48 ^s 8 ^s 2 ^s 0
31	8 ^s 20 ^s 0 ^s 35	58 ^s 8 ^s 1 ^s 5	40 ^s 95 ^s 0 ^s 55	48 ^s 9 ^s 1 ^s 6	12 ^s 94 ^s 0 ^s 33	47 ^s 2 ^s 1 ^s 6
Feb. 10	8 ^s 53 ^s 0 ^s 33	57 ^s 9 ^s 0 ^s 9	41 ^s 48 ^s 0 ^s 53	50 ^s 5 ^s 1 ^s 6	13 ^s 27 ^s 0 ^s 33	46 ^s 1 ^s 1 ^s 1
20	8 ^s 84 ^s 0 ^s 31	57 ^s 4 ^s 0 ^s 5	41 ^s 98 ^s 0 ^s 50	52 ^s 4 ^s 1 ^s 9	13 ^s 58 ^s 0 ^s 31	45 ^s 4 ^s 0 ^s 7
Mar. 1	9 ^s 12 ^s 0 ^s 28	57 ^s 5 ^s 0 ^s 1	42 ^s 44 ^s 0 ^s 46	54 ^s 6 ^s 2 ^s 2	13 ^s 86 ^s 0 ^s 28	45 ^s 3 ^s 0 ^s 1
11	9 ^s 37 ^s 0 ^s 25	58 ^s 1 ^s 0 ^s 6	42 ^s 85 ^s 0 ^s 41	57 ^s 1 ^s 2 ^s 5	14 ^s 12 ^s 0 ^s 26	45 ^s 7 ^s 0 ^s 4
21	9 ^s 59 ^s 0 ^s 22	59 ^s 1 ^s 1 ^s 0	43 ^s 21 ^s 0 ^s 36	59 ^s 7 ^s 2 ^s 6	14 ^s 34 ^s 0 ^s 22	46 ^s 6 ^s 0 ^s 9
31	9 ^s 77 ^s 0 ^s 18	60 ^s 6 ^s 1 ^s 5	43 ^s 52 ^s 0 ^s 31	62 ^s 4 ^s 2 ^s 7	14 ^s 53 ^s 0 ^s 19	47 ^s 9 ^s 1 ^s 3
Apr. 10	9 ^s 91 ^s 0 ^s 14	62 ^s 4 ^s 1 ^s 8	43 ^s 77 ^s 0 ^s 25	65 ^s 2 ^s 2 ^s 8	14 ^s 68 ^s 0 ^s 15	49 ^s 4 ^s 1 ^s 5
20	10 ^s 02 ^s 0 ^s 11	64 ^s 4 ^s 2 ^s 0	43 ^s 96 ^s 0 ^s 19	68 ^s 1 ^s 2 ^s 9	14 ^s 80 ^s 0 ^s 12	51 ^s 2 ^s 1 ^s 8
30	10 ^s 08 ^s 0 ^s 06	66 ^s 5 ^s 2 ^s 1	44 ^s 09 ^s 0 ^s 13	70 ^s 8 ^s 2 ^s 7	14 ^s 88 ^s 0 ^s 08	53 ^s 2 ^s 2 ^s 0
May 10	10 ^s 11 ^s 0 ^s 03	68 ^s 7 ^s 2 ^s 2	44 ^s 16 ^s 0 ^s 07	73 ^s 4 ^s 2 ^s 6	14 ^s 92 ^s 0 ^s 04	55 ^s 3 ^s 2 ^s 1
20	10 ^s 11 ^s 0 ^s 00	70 ^s 9 ^s 2 ^s 2	44 ^s 17 ^s 0 ^s 01	75 ^s 9 ^s 2 ^s 5	14 ^s 92 ^s 0 ^s 02	57 ^s 5 ^s 2 ^s 2
30	10 ^s 08 ^s 0 ^s 03	73 ^s 0 ^s 2 ^s 1	44 ^s 12 ^s 0 ^s 05	78 ^s 2 ^s 2 ^s 3	14 ^s 92 ^s 0 ^s 02	59 ^s 6 ^s 2 ^s 1
June 9	10 ^s 01 ^s 0 ^s 07	75 ^s 0 ^s 2 ^s 0	44 ^s 01 ^s 0 ^s 11	80 ^s 3 ^s 2 ^s 1	14 ^s 87 ^s 0 ^s 05	61 ^s 5 ^s 1 ^s 9
19	9 ^s 91 ^s 0 ^s 10	76 ^s 7 ^s 1 ^s 7	43 ^s 84 ^s 0 ^s 17	82 ^s 0 ^s 1 ^s 7	14 ^s 79 ^s 0 ^s 08	63 ^s 2 ^s 1 ^s 7
29	9 ^s 79 ^s 0 ^s 12	78 ^s 1 ^s 1 ^s 4	43 ^s 62 ^s 0 ^s 22	83 ^s 4 ^s 1 ^s 4	14 ^s 69 ^s 0 ^s 10	64 ^s 7 ^s 1 ^s 5
July 9	9 ^s 66 ^s 0 ^s 13	79 ^s 3 ^s 1 ^s 2	43 ^s 35 ^s 0 ^s 27	84 ^s 4 ^s 1 ^s 0	14 ^s 57 ^s 0 ^s 12	65 ^s 9 ^s 1 ^s 2
19	9 ^s 51 ^s 0 ^s 15	80 ^s 1 ^s 0 ^s 8	43 ^s 05 ^s 0 ^s 30	84 ^s 9 ^s 0 ^s 5	14 ^s 43 ^s 0 ^s 14	66 ^s 8 ^s 0 ^s 9
29	9 ^s 34 ^s 0 ^s 17	80 ^s 6 ^s 0 ^s 5	42 ^s 72 ^s 0 ^s 33	85 ^s 1 ^s 0 ^s 2	14 ^s 27 ^s 0 ^s 16	67 ^s 4 ^s 0 ^s 6
Aug. 8	9 ^s 16 ^s 0 ^s 18	80 ^s 7 ^s 0 ^s 1	42 ^s 36 ^s 0 ^s 36	84 ^s 8 ^s 0 ^s 3	14 ^s 10 ^s 0 ^s 17	67 ^s 7 ^s 0 ^s 3
18	8 ^s 98 ^s 0 ^s 18	80 ^s 4 ^s 0 ^s 3	42 ^s 00 ^s 0 ^s 36	84 ^s 1 ^s 0 ^s 7	13 ^s 92 ^s 0 ^s 18	67 ^s 6 ^s 0 ^s 1
28	8 ^s 80 ^s 0 ^s 18	79 ^s 8 ^s 0 ^s 6	41 ^s 65 ^s 0 ^s 35	82 ^s 9 ^s 1 ^s 2	13 ^s 74 ^s 0 ^s 28	67 ^s 1 ^s 0 ^s 5
Sept. 7	8 ^s 64 ^s 0 ^s 16	78 ^s 8 ^s 1 ^s 0	41 ^s 33 ^s 0 ^s 32	81 ^s 4 ^s 1 ^s 5	13 ^s 58 ^s 0 ^s 16	66 ^s 3 ^s 0 ^s 8
17	8 ^s 50 ^s 0 ^s 14	77 ^s 4 ^s 1 ^s 4	41 ^s 04 ^s 0 ^s 29	79 ^s 5 ^s 1 ^s 9	13 ^s 43 ^s 0 ^s 15	65 ^s 1 ^s 1 ^s 2
27	8 ^s 38 ^s 0 ^s 12	75 ^s 7 ^s 1 ^s 7	40 ^s 81 ^s 0 ^s 23	77 ^s 4 ^s 2 ^s 1	13 ^s 31 ^s 0 ^s 12	63 ^s 6 ^s 1 ^s 5
Oct. 7	8 ^s 29 ^s 0 ^s 09	73 ^s 6 ^s 2 ^s 1	40 ^s 65 ^s 0 ^s 16	75 ^s 1 ^s 2 ^s 3	13 ^s 22 ^s 0 ^s 09	61 ^s 7 ^s 1 ^s 9
17	8 ^s 25 ^s 0 ^s 04	71 ^s 3 ^s 2 ^s 3	40 ^s 56 ^s 0 ^s 09	72 ^s 7 ^s 2 ^s 4	13 ^s 16 ^s 0 ^s 06	59 ^s 6 ^s 2 ^s 1
27	8 ^s 26 ^s 0 ^s 01	68 ^s 7 ^s 2 ^s 6	40 ^s 56 ^s 0 ^s 00	70 ^s 3 ^s 2 ^s 4	13 ^s 15 ^s 0 ^s 01	57 ^s 2 ^s 2 ^s 4
Nov. 6	8 ^s 32 ^s 0 ^s 06	65 ^s 5 ^s 3 ^s 2	40 ^s 67 ^s 0 ^s 11	67 ^s 8 ^s 2 ^s 5	13 ^s 20 ^s 0 ^s 05	54 ^s 2 ^s 3 ^s 0
16	8 ^s 44 ^s 0 ^s 12	62 ^s 5 ^s 3 ^s 0	40 ^s 87 ^s 0 ^s 20	65 ^s 7 ^s 2 ^s 1	13 ^s 31 ^s 0 ^s 11	51 ^s 4 ^s 2 ^s 8
26	8 ^s 61 ^s 0 ^s 17	59 ^s 4 ^s 3 ^s 1	41 ^s 17 ^s 0 ^s 30	64 ^s 0 ^s 1 ^s 7	13 ^s 46 ^s 0 ^s 15	48 ^s 4 ^s 3 ^s 0
Dec. 6	8 ^s 83 ^s 0 ^s 22	56 ^s 4 ^s 3 ^s 0	41 ^s 54 ^s 0 ^s 37	62 ^s 6 ^s 1 ^s 4	13 ^s 67 ^s 0 ^s 21	45 ^s 4 ^s 3 ^s 0
16	9 ^s 09 ^s 0 ^s 26	53 ^s 4 ^s 3 ^s 0	41 ^s 97 ^s 0 ^s 43	61 ^s 7 ^s 0 ^s 9	13 ^s 92 ^s 0 ^s 25	42 ^s 4 ^s 3 ^s 0
26	9 ^s 39 ^s 0 ^s 30	50 ^s 6 ^s 2 ^s 8	42 ^s 46 ^s 0 ^s 49	61 ^s 2 ^s 0 ^s 5	14 ^s 20 ^s 0 ^s 28	39 ^s 6 ^s 2 ^s 8
36	9 ^s 72 ^s 0 ^s 33	48 ^s 0 ^s 2 ^s 6	42 ^s 99 ^s 0 ^s 53	61 ^s 2 ^s 0 ^s 0	14 ^s 51 ^s 0 ^s 31	37 ^s 1 ^s 2 ^s 5

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Librae.		β Ursae Minoris.		ψ Bootis.	
	R.A.	Dec. South.	R.A.	Dec. North.	R.A.	Dec. North.
	^h 14 ^m 43	[°] 15 ['] 29	^h 14 ^m 51	[°] 74 ['] 41	^h 14 ^m 58	[°] 27 ['] 27
Jan. 1	33° 74' 0.32	18° 3' 1.5	3° 00' 0.79	31° 7' 2.3	46° 04' 0.31	49° 2' 2.5
11	34° 06' 0.32	19° 8' 1.6	3° 79' 0.85	29° 4' 1.7	46° 35' 0.33	46° 7' 2.1
21	34° 38' 0.33	21° 4' 1.6	4° 64' 0.89	27° 7' 1.1	46° 68' 0.33	44° 6' 1.7
31	34° 71' 0.31	23° 0' 1.7	5° 53' 0.90	26° 6' 0.4	47° 01' 0.32	42° 9' 1.3
Feb. 10	35° 02' 0.30	24° 7' 1.5	6° 43' 0.88	26° 2' 0.3	47° 33' 0.31	41° 6' 0.8
20	35° 32' 0.27	26° 2' 1.3	7° 31' 0.83	26° 5' 0.9	47° 64' 0.30	40° 8' 0.2
Mar. 1	35° 59' 0.25	27° 5' 1.2	8° 14' 0.75	27° 4' 1.6	47° 94' 0.27	40° 6' 0.3
11	35° 84' 0.22	28° 7' 1.1	8° 89' 0.64	29° 0' 2.1	48° 21' 0.24	40° 9' 0.8
21	36° 06' 0.19	29° 8' 0.8	9° 53' 0.52	31° 1' 2.5	48° 45' 0.20	41° 7' 1.2
31	36° 25' 0.16	30° 6' 0.7	10° 05' 0.40	33° 6' 2.9	48° 65' 0.17	42° 9' 1.5
Apr. 10	36° 41' 0.13	31° 3' 0.5	10° 45' 0.25	36° 5' 3.1	48° 82' 0.14	44° 4' 1.8
20	36° 54' 0.11	31° 8' 0.4	10° 70' 0.10	39° 6' 3.1	48° 96' 0.10	46° 2' 2.0
30	36° 65' 0.07	32° 2' 0.2	10° 80' 0.04	42° 7' 3.2	49° 06' 0.07	48° 2' 2.2
May 10	36° 72' 0.05	32° 4' 0.1	10° 76' 0.17	45° 9' 3.1	49° 13' 0.03	50° 4' 2.2
20	36° 77' 0.02	32° 5' 0.0	10° 59' 0.30	49° 0' 2.8	49° 16' 0.00	52° 6' 2.1
30	36° 79' 0.01	32° 5' 0.1	10° 29' 0.42	51° 8' 2.5	49° 16' 0.03	54° 7' 2.0
June 9	36° 78' 0.04	32° 4' 0.2	9° 87' 0.52	54° 3' 2.1	49° 13' 0.07	56° 7' 1.8
19	36° 74' 0.07	32° 2' 0.3	9° 35' 0.61	56° 4' 1.7	49° 06' 0.09	58° 5' 1.6
29	36° 67' 0.08	31° 9' 0.3	8° 74' 0.68	58° 1' 1.3	48° 07' 0.11	60° 1' 1.4
July 9	36° 59' 0.11	31° 6' 0.3	8° 06' 0.73	59° 4' 0.7	48° 86' 0.14	61° 5' 1.1
19	36° 48' 0.13	31° 3' 0.5	7° 33' 0.77	60° 1' 0.2	48° 72' 0.16	62° 6' 0.7
29	36° 35' 0.15	30° 8' 0.5	6° 56' 0.78	60° 3' 0.3	48° 56' 0.17	63° 3' 0.4
Aug. 8	36° 20' 0.15	30° 3' 0.5	5° 78' 0.78	60° 0' 0.9	48° 39' 0.18	63° 7' 0.0
18	36° 05' 0.15	29° 8' 0.5	5° 00' 0.77	59° 1' 1.4	48° 21' 0.19	63° 7' 0.4
28	35° 90' 0.15	29° 3' 0.6	4° 23' 0.73	57° 7' 1.9	48° 02' 0.18	63° 3' 0.7
Sept. 7	35° 75' 0.13	28° 7' 0.4	3° 50' 0.67	55° 8' 2.3	47° 84' 0.16	62° 6' 1.0
17	35° 62' 0.10	28° 3' 0.5	2° 83' 0.60	53° 5' 2.7	47° 68' 0.14	61° 6' 1.4
27	35° 52' 0.07	27° 8' 0.3	2° 23' 0.50	50° 8' 3.1	47° 54' 0.11	60° 2' 1.7
Oct. 7	35° 45' 0.04	27° 5' 0.2	1° 73' 0.38	47° 7' 3.4	47° 43' 0.07	58° 5' 2.1
17	35° 41' 0.01	27° 3' 0.0	1° 35' 0.26	44° 3' 3.6	47° 36' 0.03	56° 4' 2.3
27	35° 42' 0.07	27° 3' 0.3	1° 09' 0.11	40° 7' 3.8	47° 33' 0.02	54° 1' 2.6
Nov. 6	35° 49' 0.12	27° 6' 0.5	{0.00} 0.05	{36.0} 3.9	47° 35' 0.08	51° 5' 3.1
16	35° 61' 0.17	28° 1' 0.7	1° 02' 0.20	32° 6' 3.8	47° 43' 0.13	48° 4' 3.0
26	35° 78' 0.22	28° 8' 0.9	1° 22' 0.35	28° 8' 3.7	47° 56' 0.19	45° 4' 3.0
Dec. 6	36° 00' 0.25	29° 7' 1.2	1° 57' 0.50	25° 1' 3.4	47° 75' 0.23	42° 4' 3.0
16	36° 25' 0.29	30° 9' 1.4	2° 07' 0.63	21° 7' 3.1	47° 98' 0.27	39° 4' 2.8
26	36° 54' 0.31	32° 3' 1.5	2° 70' 0.74	18° 6' 2.6	48° 25' 0.29	36° 6' 2.7
36	36° 85' 0.31	33° 8' 1.5	3° 44' 0.74	16° 0' 2.6	48° 54' 0.29	33° 9' 2.7

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH

Month and Day.	β Libræ.			α Coronæ Borealis.			α Serpentis.		
	R. A.		Dec. South.	R. A.		Dec. North.	R. A.		Dec. North.
	^h 15	^m 9	[°] 8 ['] 53	^h 15	^m 29	[°] 27 ['] 9	^h 15	^m 37	[°] 6 ['] 50
Jan. 1	53 ^s 17 ^s		28 ⁿ 8 ⁿ	4 ^s 41 ^s		38 ⁿ 6 ⁿ	44 ^s 62 ^s		39 ⁿ 9 ⁿ
11	53 ^m 47 ^m	0 ^s 30	30 ⁿ 4 ⁿ 1 ⁿ 6	4 ^m 70 ^m	0 ^s 29	36 ⁿ 0 ⁿ 2 ⁿ 6	44 ^m 89 ^m	0 ^s 27	37 ⁿ 8 ⁿ 2 ⁿ 1
21	53 ^m 78 ^m	0 ^s 31	32 ⁿ 0 ⁿ 1 ⁿ 6	5 ^m 01 ^m	0 ^s 31	33 ⁿ 8 ⁿ 2 ⁿ 6	45 ^m 18 ^m	0 ^s 29	35 ⁿ 9 ⁿ 1 ⁿ 9
31	54 ^m 10 ^m	0 ^s 32	33 ⁿ 6 ⁿ 1 ⁿ 6	5 ^m 33 ^m	0 ^s 31	31 ⁿ 9 ⁿ 1 ⁿ 9	45 ^m 49 ^m	0 ^s 31	34 ⁿ 2 ⁿ 1 ⁿ 7
Feb. 10		0 ^s 31			0 ^s 32			0 ^s 30	
20	54 ^m 41 ^m	0 ^s 29	35 ⁿ 1 ⁿ 5	5 ^m 65 ^m	0 ^s 32	30 ⁿ 5 ⁿ 1 ⁿ 4	45 ^m 79 ^m	0 ^s 30	32 ⁿ 7 ⁿ 1 ⁿ 5
Mar. 1	54 ^m 70 ^m	0 ^s 28	36 ⁿ 4 ⁿ 1 ⁿ 3	5 ^m 97 ^m	0 ^s 31	29 ⁿ 5 ⁿ 1 ⁿ 0	46 ^m 09 ^m	0 ^s 28	31 ⁿ 5 ⁿ 0 ⁿ 8
11	54 ^m 98 ^m	0 ^s 26	37 ⁿ 6 ⁿ 1 ⁿ 2	6 ^m 28 ^m	0 ^s 28	29 ⁿ 1 ⁿ 0 ⁿ 4	46 ^m 37 ^m	0 ^s 27	30 ⁿ 7 ⁿ 0 ⁿ 4
	55 ^m 24 ^m	0 ^s 24	38 ⁿ 5 ⁿ 0 ⁿ 9	6 ^m 56 ^m	0 ^s 26	29 ⁿ 2 ⁿ 0 ⁿ 1	46 ^m 64 ^m	0 ^s 25	30 ⁿ 3 ⁿ 0 ⁿ 1
21	55 ^m 48 ^m	0 ^s 24	39 ⁿ 2 ⁿ 0 ⁿ 7	6 ^m 82 ^m	0 ^s 23	29 ⁿ 8 ⁿ 1 ⁿ 1	46 ^m 89 ^m	0 ^s 22	30 ⁿ 2 ⁿ 0 ⁿ 2
31	55 ^m 68 ^m	0 ^s 20	39 ⁿ 6 ⁿ 0 ⁿ 4	7 ^m 05 ^m	0 ^s 19	30 ⁿ 9 ⁿ 1 ⁿ 4	47 ^m 11 ^m	0 ^s 19	30 ⁿ 4 ⁿ 0 ⁿ 6
Apr. 10	55 ^m 86 ^m	0 ^s 18	39 ⁿ 9 ⁿ 0 ⁿ 3	7 ^m 24 ^m	0 ^s 17	32 ⁿ 3 ⁿ 1 ⁿ 8	47 ^m 30 ^m	0 ^s 17	31 ⁿ 0 ⁿ 0 ⁿ 8
20	56 ^m 02 ^m	0 ^s 16	39 ⁿ 9 ⁿ 0 ⁿ 0	7 ^m 41 ^m	0 ^s 13	34 ⁿ 1 ⁿ 2 ⁿ 0	47 ^m 47 ^m	0 ^s 15	31 ⁿ 8 ⁿ 1 ⁿ 1
30	56 ^m 14 ^m	0 ^s 10	39 ⁿ 8 ⁿ 0 ⁿ 2	7 ^m 54 ^m	0 ^s 10	36 ⁿ 1 ⁿ 2 ⁿ 2	47 ^m 62 ^m	0 ^s 12	32 ⁿ 9 ⁿ 1 ⁿ 2
May 10	56 ^m 24 ^m	0 ^s 07	39 ⁿ 6 ⁿ 0 ⁿ 3	7 ^m 64 ^m	0 ^s 07	38 ⁿ 3 ⁿ 2 ⁿ 3	47 ^m 74 ^m	0 ^s 08	34 ⁿ 1 ⁿ 1 ⁿ 3
20	56 ^m 31 ^m	0 ^s 04	39 ⁿ 3 ⁿ 0 ⁿ 4	7 ^m 71 ^m	0 ^s 03	40 ⁿ 6 ⁿ 2 ⁿ 2	47 ^m 82 ^m	0 ^s 06	35 ⁿ 4 ⁿ 1 ⁿ 3
30	56 ^m 35 ^m	0 ^s 01	38 ⁿ 9 ⁿ 0 ⁿ 5	7 ^m 74 ^m	0 ^s 01	42 ⁿ 8 ⁿ 2 ⁿ 1	47 ^m 88 ^m	0 ^s 03	36 ⁿ 7 ⁿ 1 ⁿ 3
June 9	56 ^m 36 ^m	0 ^s 02	38 ⁿ 4 ⁿ 0 ⁿ 5	7 ^m 73 ^m	0 ^s 04	44 ⁿ 9 ⁿ 2 ⁿ 0	47 ^m 91 ^m	0 ^s 01	38 ⁿ 0 ⁿ 1 ⁿ 3
19	56 ^m 34 ^m	0 ^s 05	37 ⁿ 9 ⁿ 0 ⁿ 5	7 ^m 69 ^m	0 ^s 06	46 ⁿ 9 ⁿ 1 ⁿ 8	47 ^m 90 ^m	0 ^s 03	39 ⁿ 3 ⁿ 1 ⁿ 2
29	56 ^m 29 ^m	0 ^s 07	37 ⁿ 4 ⁿ 0 ⁿ 5	7 ^m 63 ^m	0 ^s 10	48 ⁿ 7 ⁿ 1 ⁿ 6	47 ^m 87 ^m	0 ^s 07	40 ⁿ 5 ⁿ 1 ⁿ 0
July 9	56 ^m 22 ^m	0 ^s 10	36 ⁿ 9 ⁿ 0 ⁿ 5	7 ^m 53 ^m	0 ^s 13	50 ⁿ 3 ⁿ 1 ⁿ 2	47 ^m 80 ^m	0 ^s 09	41 ⁿ 5 ⁿ 1 ⁿ 0
19	56 ^m 12 ^m	0 ^s 12	36 ⁿ 4 ⁿ 0 ⁿ 5	7 ^m 40 ^m	0 ^s 15	51 ⁿ 5 ⁿ 1 ⁿ 0	47 ^m 71 ^m	0 ^s 12	42 ⁿ 5 ⁿ 0 ⁿ 7
29	56 ^m 00 ^m	0 ^s 14	35 ⁿ 9 ⁿ 0 ⁿ 4	7 ^m 25 ^m	0 ^s 17	52 ⁿ 5 ⁿ 0 ⁿ 6	47 ^m 59 ^m	0 ^s 14	43 ⁿ 2 ⁿ 0 ⁿ 6
Aug. 8	55 ^m 86 ^m	0 ^s 15	35 ⁿ 5 ⁿ 0 ⁿ 4	7 ^m 08 ^m	0 ^s 19	53 ⁿ 1 ⁿ 0 ⁿ 3	47 ^m 45 ^m	0 ^s 15	43 ⁿ 8 ⁿ 0 ⁿ 4
18	55 ^m 71 ^m	0 ^s 16	35 ⁿ 1 ⁿ 0 ⁿ 4	6 ^m 89 ^m	0 ^s 19	53 ⁿ 4 ⁿ 0 ⁿ 1	47 ^m 30 ^m	0 ^s 16	44 ⁿ 2 ⁿ 0 ⁿ 2
28	55 ^m 55 ^m	0 ^s 15	34 ⁿ 7 ⁿ 0 ⁿ 3	6 ^m 70 ^m	0 ^s 20	53 ⁿ 3 ⁿ 0 ⁿ 5	47 ^m 14 ^m	0 ^s 17	44 ⁿ 4 ⁿ 0 ⁿ 0
Sept. 7	55 ^m 40 ^m	0 ^s 14	34 ⁿ 4 ⁿ 0 ⁿ 2	6 ^m 50 ^m	0 ^s 18	52 ⁿ 8 ⁿ 0 ⁿ 9	46 ^m 97 ^m	0 ^s 15	44 ⁿ 4 ⁿ 0 ⁿ 2
17	55 ^m 26 ^m	0 ^s 12	34 ⁿ 2 ⁿ 0 ⁿ 1	6 ^m 32 ^m	0 ^s 16	51 ⁿ 9 ⁿ 1 ⁿ 2	46 ^m 82 ^m	0 ^s 14	44 ⁿ 2 ⁿ 0 ⁿ 5
27	55 ^m 14 ^m	0 ^s 10	34 ⁿ 1 ⁿ 0 ⁿ 0	6 ^m 16 ^m	0 ^s 14	50 ⁿ 7 ⁿ 1 ⁿ 5	46 ^m 68 ^m	0 ^s 12	43 ⁿ 7 ⁿ 0 ⁿ 7
Oct. 7	55 ^m 04 ^m	0 ^s 06	34 ⁿ 1 ⁿ 0 ⁿ 2	6 ^m 02 ^m	0 ^s 10	49 ⁿ 2 ⁿ 1 ⁿ 9	46 ^m 56 ^m	0 ^s 09	43 ⁿ 0 ⁿ 0 ⁿ 9
17	54 ^m 98 ^m	0 ^s 01	34 ⁿ 3 ⁿ 0 ⁿ 4	5 ^m 92 ^m	0 ^s 06	47 ⁿ 3 ⁿ 2 ⁿ 2	46 ^m 47 ^m	0 ^s 05	42 ⁿ 1 ⁿ 1 ⁿ 2
27	54 ^m 97 ^m	0 ^s 04	34 ⁿ 7 ⁿ 0 ⁿ 6	5 ^m 86 ^m	0 ^s 01	45 ⁿ 1 ⁿ 2 ⁿ 5	46 ^m 42 ^m	0 ^s 00	40 ⁿ 9 ⁿ 1 ⁿ 5
Nov. 6	55 ^m 01 ^m	0 ^s 09	35 ⁿ 3 ⁿ 0 ⁿ 9	5 ^m 85 ^m	0 ^s 04	42 ⁿ 6 ⁿ 2 ⁿ 8	46 ^m 42 ^m	0 ^s 05	39 ⁿ 4 ⁿ 1 ⁿ 7
16	55 ^m 10 ^m	0 ^s 14	36 ⁿ 2 ⁿ 1 ⁿ 0	{5 ^m 82 ^m }	0 ^s 09	{39 ⁿ 2 ⁿ 1 ⁿ }	46 ^m 47 ^m	0 ^s 11	37 ⁿ 7 ⁿ 2 ⁿ 0
26	55 ^m 24 ^m	0 ^s 18	37 ⁿ 2 ⁿ 1 ⁿ 2	5 ^m 99 ^m	0 ^s 15	36 ⁿ 6 ⁿ 3 ⁿ 0	46 ^m 58 ^m	0 ^s 15	35 ⁿ 7 ⁿ 2 ⁿ 1
Dec. 6	55 ^m 42 ^m	0 ^s 23	38 ⁿ 4 ⁿ 1 ⁿ 4	6 ^m 14 ^m	0 ^s 20	33 ⁿ 6 ⁿ 3 ⁿ 0	46 ^m 73 ^m	0 ^s 19	33 ⁿ 6 ⁿ 2 ⁿ 1
16	55 ^m 65 ^m	0 ^s 26	39 ⁿ 8 ⁿ 1 ⁿ 6	6 ^m 34 ^m	0 ^s 25	30 ⁿ 6 ⁿ 2 ⁿ 9	46 ^m 92 ^m	0 ^s 23	31 ⁿ 5 ⁿ 2 ⁿ 2
26	55 ^m 91 ^m	0 ^s 29	41 ⁿ 4 ⁿ 1 ⁿ 6	6 ^m 59 ^m	0 ^s 28	27 ⁿ 7 ⁿ 2 ⁿ 8	47 ^m 15 ^m	0 ^s 27	29 ⁿ 3 ⁿ 2 ⁿ 2
36	56 ^m 20 ^m		43 ⁿ 0 ⁿ	6 ^m 87 ^m		24 ⁿ 9 ⁿ	47 ^m 42 ^m		27 ⁿ 1 ⁿ

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	ζ Ursæ Minoris.		β ¹ Scorpii.		δ Ophiuchi.	
	R. A.	Dec. North.	R. A.	Dec. South.	R. A.	Dec. South.
	^h 15 ^m 48	[°] 78 ['] 11	^h 15 ^m 57	[°] 19 ['] 26	^h 16 ^m 7	[°] 3 ['] 20
Jan. 1	44° 01' 0.79	52° 2' 2.8	44° 46' 0.29	17° 9' 1.0	24° 30' 0.26	59° 6' 1.7
11	44° 80' 0.93	49° 4' 2.3	44° 75' 0.30	18° 9' 1.1	24° 56' 0.28	61° 3' 1.6
21	45° 73' 1.04	47° 1' 1.8	45° 05' 0.32	20° 0' 1.1	24° 84' 0.29	62° 9' 1.5
31	46° 77' 1.10	45° 3' 1.1	45° 37' 0.32	21° 1' 1.2	25° 13' 0.30	64° 4' 1.4
Feb. 10	47° 87' 1.13	44° 2' 0.5	45° 69' 0.32	22° 3' 1.1	25° 43' 0.30	65° 8' 1.1
20	49° 00' 1.12	43° 7' 0.2	46° 01' 0.31	23° 4' 1.0	25° 73' 0.29	66° 9' 0.9
Mar. 1	50° 12' 1.06	43° 9' 0.9	46° 32' 0.29	24° 4' 1.0	26° 02' 0.28	67° 8' 0.7
11	51° 18' 0.97	44° 8' 1.5	46° 61' 0.27	25° 4' 0.8	26° 30' 0.26	68° 5' 0.4
21	52° 15' 0.85	46° 3' 2.0	46° 88' 0.26	26° 2' 0.7	26° 56' 0.25	68° 9' 0.1
31	53° 00' 0.71	48° 3' 2.5	47° 14' 0.23	26° 9' 0.6	26° 81' 0.22	69° 0' 0.2
Apr. 10	53° 71' 0.54	50° 8' 2.8	47° 37' 0.21	27° 5' 0.4	27° 03' 0.20	68° 8' 0.4
20	54° 25' 0.36	53° 6' 3.1	47° 58' 0.18	27° 9' 0.4	27° 23' 0.17	68° 4' 0.5
30	54° 61' 0.17	56° 7' 3.2	47° 76' 0.15	28° 3' 0.2	27° 40' 0.15	67° 9' 0.7
May 10	54° 78' 0.00	59° 9' 3.2	47° 91' 0.12	28° 5' 0.3	27° 55' 0.12	67° 2' 0.8
20	54° 78' 0.19	63° 1' 3.1	48° 03' 0.09	28° 8' 0.1	27° 67' 0.09	66° 4' 0.8
30	54° 59' 0.37	66° 2' 2.9	48° 12' 0.06	28° 9' 0.0	27° 76' 0.06	65° 6' 0.9
June 9	54° 22' 0.52	69° 1' 2.7	48° 18' 0.03	28° 9' 0.0	27° 82' 0.02	64° 7' 0.8
19	53° 70' 0.67	71° 8' 2.3	48° 21' 0.01	28° 9' 0.0	27° 84' 0.01	63° 9' 0.8
29	53° 03' 0.80	74° 1' 1.9	48° 20' 0.05	28° 9' 0.0	27° 83' 0.04	63° 1' 0.8
July 9	52° 23' 0.90	76° 0' 1.4	48° 15' 0.08	28° 9' 0.1	27° 79' 0.07	62° 3' 0.7
19	51° 33' 0.99	77° 4' 1.0	48° 07' 0.11	28° 8' 0.2	27° 72' 0.10	61° 6' 0.6
29	50° 34' 1.05	78° 4' 0.4	47° 96' 0.13	28° 6' 0.2	27° 62' 0.12	61° 0' 0.5
Aug. 8	49° 29' 1.09	78° 8' 0.0	47° 83' 0.16	28° 4' 0.3	27° 50' 0.15	60° 5' 0.4
18	48° 20' 1.10	78° 8' 0.6	47° 67' 0.17	28° 1' 0.3	27° 35' 0.16	60° 1' 0.3
28	47° 10' 1.09	78° 2' 1.1	47° 50' 0.17	27° 8' 0.3	27° 19' 0.17	59° 8' 0.2
Sept. 7	46° 01' 1.05	77° 1' 1.6	47° 33' 0.17	27° 5' 0.4	27° 02' 0.17	59° 6' 0.0
17	44° 96' 0.98	75° 5' 2.0	47° 16' 0.16	27° 1' 0.4	26° 85' 0.15	59° 6' 0.1
27	43° 98' 0.89	73° 5' 2.5	47° 00' 0.13	26° 7' 0.3	26° 70' 0.13	59° 7' 0.3
Oct. 7	43° 09' 0.77	71° 0' 2.9	46° 87' 0.10	26° 4' 0.3	26° 57' 0.11	60° 0' 0.4
17	42° 32' 0.63	68° 1' 3.2	46° 77' 0.06	26° 1' 0.2	26° 46' 0.07	60° 4' 0.6
27	41° 69' 0.46	64° 9' 3.5	46° 71' 0.01	25° 9' 0.1	26° 39' 0.02	61° 0' 0.9
Nov. 6	41° 23' 0.28	61° 4' 3.7	46° 70' 0.04	25° 8' 0.0	26° 37' 0.03	61° 9' 1.0
16	40° 95' 0.08	57° 7' 4.2	46° 74' 0.11	25° 8' 0.3	26° 40' 0.08	62° 9' 1.3
26	40° 87' 0.14	53° 5' 3.8	46° 85' 0.15	26° 1' 0.4	26° 48' 0.13	64° 2' 1.4
Dec. 6	41° 01' 0.34	49° 7' 3.6	47° 00' 0.19	26° 5' 0.7	26° 61' 0.17	65° 6' 1.6
16	41° 35' 0.53	46° 1' 3.4	47° 19' 0.24	27° 2' 0.8	26° 78' 0.21	67° 2' 1.6
26	41° 88' 0.72	42° 7' 3.1	47° 43' 0.28	28° 0' 1.0	26° 99' 0.25	68° 8' 1.7
36	42° 60' 0.72	39° 6' 3.1	47° 71' 0.28	29° 0' 1.0	27° 24' 0.25	70° 5' 1.7

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Scorpii (Antares)		η Draconis.		α Trianguli Australis.	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. South.
	^h 16 ^m 21	[°] 26 ['] 7	^h 16 ^m 22	[°] 61 ['] 48	^h 16 ^m 34	[°] 68 ['] 46
Jan. 1	17 ^s .45 ^s 0 ^s .29	57 ^s .8 ^s 0 ^s .6	10 ^s .28 ^s 0 ^s .35	47 ^s .6 ^s 1 ^s .7	39 ^s .63 ^s 0 ^s .58	30 ^s .6 ^s 1 ^s .6
11	17 ^s .74 ^s 0 ^s .31	58 ^s .4 ^s 0 ^s .7	10 ^s .63 ^s 0 ^s .41	44 ^s .4 ^s 2 ^s .8	40 ^s .21 ^s 0 ^s .65	29 ^s .0 ^s 1 ^s .2
21	18 ^s .05 ^s 0 ^s .32	59 ^s .1 ^s 0 ^s .8	11 ^s .04 ^s 0 ^s .47	41 ^s .6 ^s 2 ^s .3	40 ^s .86 ^s 0 ^s .70	27 ^s .8 ^s 0 ^s .7
31	18 ^s .37 ^s 0 ^s .33	59 ^s .9 ^s 0 ^s .8	11 ^s .51 ^s 0 ^s .50	39 ^s .3 ^s 1 ^s .7	41 ^s .56 ^s 0 ^s .74	27 ^s .1 ^s 0 ^s .3
Feb. 10	18 ^s .70 ^s 0 ^s .33	60 ^s .7 ^s 0 ^s .9	12 ^s .01 ^s 0 ^s .52	37 ^s .6 ^s 1 ^s .1	42 ^s .30 ^s 0 ^s .75	26 ^s .8 ^s 0 ^s .1
20	19 ^s .03 ^s 0 ^s .33	61 ^s .6 ^s 0 ^s .9	12 ^s .53 ^s 0 ^s .52	36 ^s .5 ^s 0 ^s .4	43 ^s .05 ^s 0 ^s .76	26 ^s .9 ^s 0 ^s .5
Mar. 1	19 ^s .36 ^s 0 ^s .32	62 ^s .5 ^s 0 ^s .9	13 ^s .05 ^s 0 ^s .51	36 ^s .1 ^s 0 ^s .3	43 ^s .81 ^s 0 ^s .74	27 ^s .4 ^s 0 ^s .8
11	19 ^s .68 ^s 0 ^s .30	63 ^s .4 ^s 0 ^s .8	13 ^s .56 ^s 0 ^s .48	36 ^s .4 ^s 0 ^s .9	44 ^s .55 ^s 0 ^s .71	28 ^s .2 ^s 1 ^s .3
21	19 ^s .98 ^s 0 ^s .28	64 ^s .2 ^s 0 ^s .8	14 ^s .04 ^s 0 ^s .44	37 ^s .3 ^s 1 ^s .5	45 ^s .26 ^s 0 ^s .67	29 ^s .5 ^s 1 ^s .6
31	20 ^s .26 ^s 0 ^s .26	65 ^s .0 ^s 0 ^s .7	14 ^s .48 ^s 0 ^s .39	38 ^s .8 ^s 2 ^s .1	45 ^s .93 ^s 0 ^s .63	31 ^s .1 ^s 1 ^s .8
Apr. 10	20 ^s .52 ^s 0 ^s .24	65 ^s .7 ^s 0 ^s .6	14 ^s .87 ^s 0 ^s .32	40 ^s .9 ^s 2 ^s .5	46 ^s .56 ^s 0 ^s .57	32 ^s .9 ^s 2 ^s .1
20	20 ^s .76 ^s 0 ^s .21	66 ^s .4 ^s 0 ^s .5	15 ^s .19 ^s 0 ^s .26	43 ^s .4 ^s 2 ^s .8	47 ^s .13 ^s 0 ^s .50	35 ^s .0 ^s 2 ^s .3
30	20 ^s .97 ^s 0 ^s .18	67 ^s .0 ^s 0 ^s .5	15 ^s .45 ^s 0 ^s .19	46 ^s .2 ^s 3 ^s .1	47 ^s .63 ^s 0 ^s .42	37 ^s .3 ^s 2 ^s .5
May 10	21 ^s .15 ^s 0 ^s .16	67 ^s .5 ^s 0 ^s .5	15 ^s .64 ^s 0 ^s .12	49 ^s .3 ^s 3 ^s .2	48 ^s .05 ^s 0 ^s .34	39 ^s .8 ^s 2 ^s .6
20	21 ^s .31 ^s 0 ^s .12	68 ^s .0 ^s 0 ^s .5	15 ^s .76 ^s 0 ^s .04	52 ^s .5 ^s 3 ^s .2	48 ^s .39 ^s 0 ^s .25	42 ^s .4 ^s 2 ^s .6
30	21 ^s .43 ^s 0 ^s .08	68 ^s .5 ^s 0 ^s .4	15 ^s .80 ^s 0 ^s .04	55 ^s .7 ^s 3 ^s .2	48 ^s .64 ^s 0 ^s .16	45 ^s .0 ^s 2 ^s .6
June 9	21 ^s .51 ^s 0 ^s .05	68 ^s .9 ^s 0 ^s .4	15 ^s .76 ^s 0 ^s .11	58 ^s .9 ^s 3 ^s .0	48 ^s .80 ^s 0 ^s .06	47 ^s .6 ^s 2 ^s .6
19	21 ^s .56 ^s 0 ^s .01	69 ^s .3 ^s 0 ^s .3	15 ^s .65 ^s 0 ^s .18	61 ^s .9 ^s 2 ^s .7	48 ^s .86 ^s 0 ^s .04	50 ^s .2 ^s 2 ^s .5
29	21 ^s .57 ^s 0 ^s .03	69 ^s .6 ^s 0 ^s .3	15 ^s .47 ^s 0 ^s .24	64 ^s .6 ^s 2 ^s .3	48 ^s .82 ^s 0 ^s .14	52 ^s .7 ^s 2 ^s .2
July 9	21 ^s .54 ^s 0 ^s .07	69 ^s .9 ^s 0 ^s .2	15 ^s .23 ^s 0 ^s .30	66 ^s .9 ^s 2 ^s .0	48 ^s .68 ^s 0 ^s .23	54 ^s .9 ^s 2 ^s .0
19	21 ^s .47 ^s 0 ^s .10	70 ^s .1 ^s 0 ^s .1	14 ^s .93 ^s 0 ^s .35	68 ^s .9 ^s 1 ^s .6	48 ^s .45 ^s 0 ^s .32	56 ^s .9 ^s 1 ^s .7
29	21 ^s .37 ^s 0 ^s .13	70 ^s .2 ^s 0 ^s .1	14 ^s .58 ^s 0 ^s .39	70 ^s .5 ^s 1 ^s .1	48 ^s .13 ^s 0 ^s .40	58 ^s .6 ^s 1 ^s .3
Aug. 8	21 ^s .24 ^s 0 ^s .16	70 ^s .3 ^s 0 ^s .1	14 ^s .19 ^s 0 ^s .43	71 ^s .6 ^s 0 ^s .6	47 ^s .73 ^s 0 ^s .47	59 ^s .9 ^s 0 ^s .8
18	21 ^s .08 ^s 0 ^s .18	70 ^s .2 ^s 0 ^s .2	13 ^s .76 ^s 0 ^s .45	72 ^s .2 ^s 0 ^s .1	47 ^s .26 ^s 0 ^s .50	60 ^s .7 ^s 0 ^s .4
28	20 ^s .90 ^s 0 ^s .19	70 ^s .0 ^s 0 ^s .3	13 ^s .31 ^s 0 ^s .45	72 ^s .3 ^s 0 ^s .4	46 ^s .76 ^s 0 ^s .52	61 ^s .1 ^s 0 ^s .0
Sept. 7	20 ^s .71 ^s 0 ^s .19	69 ^s .7 ^s 0 ^s .4	12 ^s .86 ^s 0 ^s .45	71 ^s .9 ^s 0 ^s .9	46 ^s .24 ^s 0 ^s .52	61 ^s .1 ^s 0 ^s .6
17	20 ^s .52 ^s 0 ^s .18	69 ^s .3 ^s 0 ^s .4	12 ^s .41 ^s 0 ^s .43	71 ^s .0 ^s 1 ^s .4	45 ^s .72 ^s 0 ^s .50	60 ^s .5 ^s 1 ^s .0
27	20 ^s .34 ^s 0 ^s .15	68 ^s .9 ^s 0 ^s .5	11 ^s .98 ^s 0 ^s .40	69 ^s .6 ^s 2 ^s .0	45 ^s .22 ^s 0 ^s .46	59 ^s .5 ^s 1 ^s .4
Oct. 7	20 ^s .19 ^s 0 ^s .12	68 ^s .4 ^s 0 ^s .5	11 ^s .58 ^s 0 ^s .35	67 ^s .6 ^s 2 ^s .4	44 ^s .76 ^s 0 ^s .38	58 ^s .1 ^s 1 ^s .8
17	20 ^s .07 ^s 0 ^s .09	67 ^s .9 ^s 0 ^s .6	11 ^s .23 ^s 0 ^s .30	65 ^s .2 ^s 2 ^s .8	44 ^s .38 ^s 0 ^s .28	56 ^s .3 ^s 2 ^s .1
27	19 ^s .98 ^s 0 ^s .03	67 ^s .3 ^s 0 ^s .4	10 ^s .93 ^s 0 ^s .22	62 ^s .4 ^s 3 ^s .1	44 ^s .10 ^s 0 ^s .18	54 ^s .2 ^s 2 ^s .4
Nov. 6	19 ^s .95 ^s 0 ^s .02	66 ^s .9 ^s 0 ^s .4	10 ^s .71 ^s 0 ^s .13	59 ^s .3 ^s 3 ^s .5	43 ^s .92 ^s 0 ^s .06	51 ^s .8 ^s 2 ^s .5
16	19 ^s .97 ^s 0 ^s .07	66 ^s .5 ^s 0 ^s .2	10 ^s .58 ^s 0 ^s .05	55 ^s .8 ^s 3 ^s .7	43 ^s .86 ^s 0 ^s .07	49 ^s .3 ^s 2 ^s .6
26	20 ^s .04 ^s 0 ^s .14	66 ^s .3 ^s 0 ^s .0	10 ^s .53 ^s 0 ^s .05	52 ^s .1 ^s 4 ^s .1	43 ^s .93 ^s 0 ^s .21	46 ^s .7 ^s 2 ^s .6
Dec. 6	20 ^s .18 ^s 0 ^s .19	66 ^s .3 ^s 0 ^s .1	10 ^s .58 ^s 0 ^s .14	48 ^s .0 ^s 3 ^s .8	44 ^s .14 ^s 0 ^s .33	44 ^s .1 ^s 2 ^s .4
16	20 ^s .37 ^s 0 ^s .23	66 ^s .4 ^s 0 ^s .3	10 ^s .72 ^s 0 ^s .23	44 ^s .2 ^s 3 ^s .6	44 ^s .47 ^s 0 ^s .44	41 ^s .7 ^s 2 ^s .0
26	20 ^s .60 ^s 0 ^s .27	66 ^s .7 ^s 0 ^s .5	10 ^s .95 ^s 0 ^s .32	40 ^s .6 ^s 3 ^s .5	44 ^s .91 ^s 0 ^s .54	39 ^s .7 ^s 1 ^s .7
36	20 ^s .87 ^s 0 ^s .27	67 ^s .2 ^s 0 ^s .5	11 ^s .27 ^s 0 ^s .32	37 ^s .1 ^s 3 ^s .5	45 ^s .45 ^s 0 ^s .54	38 ^s .0 ^s 1 ^s .7

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	ζ Herculis.		κ Ophiuchi.		ε Ursæ Minoris.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 16 ^m 36	[°] 31 ['] 50	^h 16 ^m 51	[°] 9 ['] 34	^h 16 ^m 59	[°] 82 ['] 14
Jan. 1	16 ^s 87 ^s 0 ^s 23	40 ^s 0 ^s 0 ^s	23 ^s 68 ^s 0 ^s 22	63 ^s 1 ^s 0 ^s	26 ^s 55 ^s 0 ^s 71	59 ^s 9 ^s 3 ^s
11	17 ^s 10 ^s 0 ^s 27	37 ^s 0 ^s 2 ^s 6	23 ^s 90 ^s 0 ^s 25	61 ^s 0 ^s 2 ^s 0	27 ^s 26 ^s 0 ^s 99	56 ^s 6 ^s 2 ^s 9
21	17 ^s 37 ^s 0 ^s 30	34 ^s 4 ^s 2 ^s 2	24 ^s 15 ^s 0 ^s 27	59 ^s 0 ^s 1 ^s 8	28 ^s 25 ^s 1 ^s 23	53 ^s 7 ^s 2 ^s 5
31	17 ^s 67 ^s 0 ^s 32	32 ^s 2 ^s 1 ^s 9	24 ^s 42 ^s 0 ^s 28	57 ^s 2 ^s 1 ^s 6	29 ^s 48 ^s 1 ^s 42	51 ^s 2 ^s 1 ^s 9
Feb. 10	17 ^s 99 ^s 0 ^s 32	30 ^s 3 ^s 1 ^s 3	24 ^s 70 ^s 0 ^s 29	55 ^s 6 ^s 1 ^s 2	30 ^s 90 ^s 1 ^s 56	49 ^s 3 ^s 1 ^s 4
20	18 ^s 31 ^s 0 ^s 32	29 ^s 0 ^s 0 ^s 7	24 ^s 99 ^s 0 ^s 29	54 ^s 4 ^s 0 ^s 9	32 ^s 46 ^s 1 ^s 64	47 ^s 9 ^s 0 ^s 7
Mar. 1	18 ^s 63 ^s 0 ^s 31	28 ^s 3 ^s 0 ^s 2	25 ^s 28 ^s 0 ^s 29	53 ^s 5 ^s 0 ^s 5	34 ^s 10 ^s 1 ^s 66	47 ^s 2 ^s 0 ^s 0
11	18 ^s 94 ^s 0 ^s 30	28 ^s 1 ^s 0 ^s 3	25 ^s 57 ^s 0 ^s 27	53 ^s 0 ^s 0 ^s 0	35 ^s 76 ^s 1 ^s 61	47 ^s 2 ^s 0 ^s 5
21	19 ^s 24 ^s 0 ^s 28	28 ^s 4 ^s 0 ^s 9	25 ^s 84 ^s 0 ^s 26	53 ^s 0 ^s 0 ^s 3	37 ^s 37 ^s 1 ^s 51	47 ^s 7 ^s 1 ^s 2
31	19 ^s 52 ^s 0 ^s 26	29 ^s 3 ^s 1 ^s 4	26 ^s 10 ^s 0 ^s 25	53 ^s 3 ^s 0 ^s 6	38 ^s 88 ^s 1 ^s 36	48 ^s 9 ^s 1 ^s 8
Apr. 10	19 ^s 78 ^s 0 ^s 23	30 ^s 7 ^s 1 ^s 7	26 ^s 35 ^s 0 ^s 23	53 ^s 9 ^s 1 ^s 0	40 ^s 24 ^s 1 ^s 16	50 ^s 7 ^s 2 ^s 3
20	20 ^s 01 ^s 0 ^s 20	32 ^s 4 ^s 2 ^s 1	26 ^s 58 ^s 0 ^s 21	54 ^s 9 ^s 1 ^s 2	41 ^s 40 ^s 0 ^s 93	53 ^s 0 ^s 2 ^s 6
30	20 ^s 21 ^s 0 ^s 16	34 ^s 5 ^s 2 ^s 4	26 ^s 79 ^s 0 ^s 18	56 ^s 1 ^s 1 ^s 5	42 ^s 33 ^s 0 ^s 68	55 ^s 6 ^s 2 ^s 9
May 10	20 ^s 37 ^s 0 ^s 13	36 ^s 9 ^s 2 ^s 6	26 ^s 97 ^s 0 ^s 15	57 ^s 6 ^s 1 ^s 6	43 ^s 01 ^s 0 ^s 40	58 ^s 5 ^s 3 ^s 1
20	20 ^s 50 ^s 0 ^s 10	39 ^s 5 ^s 2 ^s 6	27 ^s 12 ^s 0 ^s 12	59 ^s 2 ^s 1 ^s 6	43 ^s 41 ^s 0 ^s 12	61 ^s 6 ^s 3 ^s 2
30	20 ^s 60 ^s 0 ^s 05	42 ^s 1 ^s 2 ^s 5	27 ^s 24 ^s 0 ^s 09	60 ^s 8 ^s 1 ^s 7	43 ^s 53 ^s 0 ^s 17	64 ^s 8 ^s 3 ^s 2
June 9	20 ^s 65 ^s 0 ^s 02	44 ^s 6 ^s 2 ^s 5	27 ^s 33 ^s 0 ^s 05	62 ^s 5 ^s 1 ^s 6	43 ^s 36 ^s 0 ^s 44	68 ^s 0 ^s 3 ^s 0
19	20 ^s 67 ^s 0 ^s 03	47 ^s 1 ^s 2 ^s 4	27 ^s 38 ^s 0 ^s 02	64 ^s 1 ^s 1 ^s 6	42 ^s 92 ^s 0 ^s 70	71 ^s 0 ^s 2 ^s 9
29	20 ^s 64 ^s 0 ^s 07	49 ^s 5 ^s 2 ^s 1	27 ^s 40 ^s 0 ^s 02	65 ^s 7 ^s 1 ^s 4	42 ^s 22 ^s 0 ^s 95	73 ^s 9 ^s 2 ^s 6
July 9	20 ^s 57 ^s 0 ^s 10	51 ^s 6 ^s 1 ^s 9	27 ^s 38 ^s 0 ^s 05	67 ^s 1 ^s 1 ^s 3	41 ^s 27 ^s 1 ^s 16	76 ^s 5 ^s 2 ^s 2
19	20 ^s 47 ^s 0 ^s 14	53 ^s 5 ^s 1 ^s 5	27 ^s 33 ^s 0 ^s 09	68 ^s 4 ^s 1 ^s 0	40 ^s 11 ^s 1 ^s 36	78 ^s 7 ^s 1 ^s 9
29	20 ^s 33 ^s 0 ^s 17	55 ^s 0 ^s 1 ^s 2	27 ^s 24 ^s 0 ^s 12	69 ^s 4 ^s 0 ^s 9	38 ^s 75 ^s 1 ^s 51	80 ^s 6 ^s 1 ^s 4
Aug. 8	20 ^s 16 ^s 0 ^s 20	56 ^s 2 ^s 0 ^s 9	27 ^s 12 ^s 0 ^s 15	70 ^s 3 ^s 0 ^s 7	37 ^s 24 ^s 1 ^s 64	82 ^s 0 ^s 1 ^s 0
18	19 ^s 96 ^s 0 ^s 21	57 ^s 1 ^s 0 ^s 4	26 ^s 97 ^s 0 ^s 16	71 ^s 0 ^s 0 ^s 4	35 ^s 60 ^s 1 ^s 73	83 ^s 0 ^s 0 ^s 4
28	19 ^s 75 ^s 0 ^s 23	57 ^s 5 ^s 0 ^s 0	26 ^s 81 ^s 0 ^s 18	71 ^s 4 ^s 0 ^s 2	33 ^s 87 ^s 1 ^s 79	83 ^s 4 ^s 0 ^s 0
Sept. 7	19 ^s 52 ^s 0 ^s 22	57 ^s 5 ^s 0 ^s 4	26 ^s 63 ^s 0 ^s 19	71 ^s 6 ^s 0 ^s 3	32 ^s 08 ^s 1 ^s 79	83 ^s 4 ^s 0 ^s 5
17	19 ^s 30 ^s 0 ^s 22	57 ^s 1 ^s 0 ^s 8	26 ^s 44 ^s 0 ^s 18	71 ^s 6 ^s 0 ^s 3	30 ^s 29 ^s 1 ^s 75	82 ^s 9 ^s 1 ^s 0
27	19 ^s 08 ^s 0 ^s 20	56 ^s 3 ^s 1 ^s 2	26 ^s 26 ^s 0 ^s 16	71 ^s 3 ^s 0 ^s 6	28 ^s 54 ^s 1 ^s 69	81 ^s 9 ^s 1 ^s 6
Oct. 7	18 ^s 88 ^s 0 ^s 17	55 ^s 1 ^s 1 ^s 5	26 ^s 10 ^s 0 ^s 14	70 ^s 7 ^s 0 ^s 9	26 ^s 85 ^s 1 ^s 57	80 ^s 3 ^s 2 ^s 0
17	18 ^s 71 ^s 0 ^s 14	53 ^s 6 ^s 2 ^s 0	25 ^s 96 ^s 0 ^s 11	69 ^s 8 ^s 1 ^s 1	25 ^s 28 ^s 1 ^s 40	78 ^s 3 ^s 2 ^s 4
27	18 ^s 57 ^s 0 ^s 09	51 ^s 6 ^s 2 ^s 4	25 ^s 85 ^s 0 ^s 07	68 ^s 7 ^s 1 ^s 3	23 ^s 88 ^s 1 ^s 21	75 ^s 9 ^s 2 ^s 8
Nov. 6	18 ^s 48 ^s 0 ^s 05	49 ^s 2 ^s 2 ^s 7	25 ^s 78 ^s 0 ^s 03	67 ^s 4 ^s 1 ^s 6	22 ^s 67 ^s 0 ^s 97	73 ^s 1 ^s 3 ^s 2
16	18 ^s 43 ^s 0 ^s 01	46 ^s 5 ^s 2 ^s 9	25 ^s 75 ^s 0 ^s 02	65 ^s 8 ^s 1 ^s 9	21 ^s 70 ^s 0 ^s 70	69 ^s 9 ^s 3 ^s 4
26	18 ^s 44 ^s 0 ^s 07	43 ^s 6 ^s 3 ^s 3	25 ^s 77 ^s 0 ^s 08	63 ^s 9 ^s 2 ^s 2	21 ^s 00 ^s 0 ^s 41	66 ^s 5 ^s 3 ^s 5
Dec. 6	18 ^s 51 ^s 0 ^s 13	40 ^s 3 ^s 3 ^s 2	25 ^s 85 ^s 0 ^s 12	61 ^s 7 ^s 2 ^s 1	20 ^s 59 ^s 0 ^s 09	63 ^s 0 ^s 4 ^s 0
16	18 ^s 64 ^s 0 ^s 18	37 ^s 1 ^s 3 ^s 1	25 ^s 97 ^s 0 ^s 17	59 ^s 6 ^s 2 ^s 2	20 ^s 50 ^s 0 ^s 25	59 ^s 0 ^s 3 ^s 6
26	18 ^s 82 ^s 0 ^s 22	34 ^s 0 ^s 3 ^s 0	26 ^s 14 ^s 0 ^s 20	57 ^s 4 ^s 2 ^s 2	20 ^s 75 ^s 0 ^s 56	55 ^s 4 ^s 3 ^s 4
36	19 ^s 04 ^s 0 ^s 22	31 ^s 0 ^s 3 ^s 0	26 ^s 34 ^s 0 ^s 20	55 ^s 2 ^s 2 ^s 2	21 ^s 31 ^s 0 ^s 56	52 ^s 0 ^s 3 ^s 4

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Herculis.		θ Ophiuchi.		β Draconis.	
	R. A.	Dec. North.	R. A.	Dec. South.	R. A.	Dec. North.
	^h 17 ^m 8	^o 14 ['] 32	^h 17 ^m 13	^o 24 ['] 51	^h 17 ^m 27	^o 52 ['] 23
Jan. 1	36° 03' 0.20	40° 7' 2.3	52° 44' 0.24	40° 2' 0.3	24° 62' 0.20	63° 6' 3.5
11	36° 23' 0.24	38° 4' 2.2	52° 68' 0.26	40° 5' 0.4	24° 82' 0.26	60° 1' 3.2
21	36° 47' 0.26	36° 2' 2.0	52° 94' 0.29	40° 9' 0.5	25° 08' 0.32	56° 9' 2.8
31	36° 73' 0.27	34° 2' 1.7	53° 23' 0.31	41° 4' 0.5	25° 40' 0.35	54° 1' 2.4
Feb. 10	37° 00' 0.29	32° 5' 1.3	53° 54' 0.32	41° 9' 0.5	25° 75' 0.38	51° 7' 1.8
20	37° 29' 0.29	31° 2' 0.9	53° 86' 0.32	42° 4' 0.5	26° 13' 0.41	49° 9' 1.2
Mar. 1	37° 58' 0.29	30° 3' 0.5	54° 18' 0.32	42° 9' 0.4	26° 54' 0.41	48° 7' 0.5
11	37° 87' 0.28	29° 8' 0.0	54° 50' 0.32	43° 3' 0.4	26° 95' 0.40	48° 2' 0.1
21	38° 15' 0.28	29° 8' 0.4	54° 82' 0.30	43° 7' 0.4	27° 35' 0.40	48° 3' 0.8
31	38° 43' 0.26	30° 2' 0.8	55° 12' 0.29	44° 1' 0.3	27° 75' 0.37	49° 1' 1.3
Apr. 10	38° 69' 0.23	31° 0' 1.1	55° 41' 0.28	44° 4' 0.3	28° 12' 0.34	50° 4' 1.8
20	38° 92' 0.22	32° 1' 1.4	55° 69' 0.25	44° 7' 0.2	28° 46' 0.29	52° 2' 2.3
30	39° 14' 0.19	33° 5' 1.7	55° 94' 0.23	44° 9' 0.2	28° 75' 0.26	54° 5' 2.8
May 10	39° 33' 0.17	35° 2' 1.8	56° 17' 0.21	45° 1' 0.2	29° 01' 0.21	57° 3' 3.0
20	39° 50' 0.14	37° 0' 1.9	56° 38' 0.17	45° 3' 0.2	29° 22' 0.15	60° 3' 3.1
30	39° 64' 0.10	38° 9' 2.0	56° 55' 0.14	45° 5' 0.2	29° 37' 0.09	63° 4' 3.2
June 9	39° 74' 0.06	40° 9' 1.9	56° 69' 0.10	45° 7' 0.2	29° 46' 0.04	66° 6' 3.2
19	39° 80' 0.03	42° 8' 1.9	56° 79' 0.06	45° 9' 0.2	29° 50' 0.03	69° 8' 3.1
29	39° 83' 0.01	44° 7' 1.7	56° 85' 0.01	46° 1' 0.3	29° 47' 0.08	72° 9' 2.9
July 9	39° 82' 0.05	46° 4' 1.5	56° 86' 0.02	46° 4' 0.2	29° 39' 0.14	75° 8' 2.6
19	39° 77' 0.08	47° 9' 1.3	56° 84' 0.06	46° 6' 0.2	29° 25' 0.20	78° 4' 2.3
29	39° 69' 0.12	49° 2' 1.1	56° 78' 0.11	46° 8' 0.2	29° 05' 0.24	80° 7' 1.8
Aug. 8	39° 57' 0.14	50° 3' 0.8	56° 67' 0.14	47° 0' 0.1	28° 81' 0.29	82° 5' 1.5
18	39° 43' 0.17	51° 1' 0.6	56° 53' 0.17	47° 1' 0.1	28° 52' 0.32	84° 0' 1.0
28	39° 26' 0.19	51° 7' 0.2	56° 36' 0.18	47° 2' 0.0	28° 20' 0.34	85° 0' 0.5
Sept. 7	39° 07' 0.19	51° 9' 0.0	56° 18' 0.19	47° 2' 0.1	27° 86' 0.35	85° 5' 0.1
17	38° 88' 0.19	51° 9' 0.3	55° 99' 0.19	47° 1' 0.2	27° 51' 0.36	85° 6' 0.5
27	38° 69' 0.18	51° 6' 0.6	55° 80' 0.18	46° 9' 0.2	27° 15' 0.34	85° 1' 1.1
Oct. 7	38° 51' 0.15	51° 0' 0.9	55° 62' 0.16	46° 7' 0.3	26° 81' 0.32	84° 0' 1.5
17	38° 36' 0.13	50° 1' 1.2	55° 46' 0.12	46° 4' 0.4	26° 49' 0.28	82° 5' 2.0
27	38° 23' 0.09	48° 9' 1.5	55° 34' 0.08	46° 0' 0.3	26° 21' 0.24	80° 5' 2.3
Nov. 6	38° 14' 0.05	47° 4' 1.8	55° 26' 0.04	45° 7' 0.2	25° 97' 0.18	78° 2' 2.8
16	38° 09' 0.00	45° 6' 2.0	55° 22' 0.02	45° 5' 0.2	25° 79' 0.11	75° 4' 3.2
26	38° 09' 0.05	43° 6' 2.2	55° 24' 0.07	45° 3' 0.1	25° 68' 0.04	72° 2' 3.4
Dec. 6	38° 14' 0.11	41° 4' 2.6	55° 31' 0.14	45° 2' 0.0	25° 64' 0.03	68° 8' 3.9
16	38° 25' 0.14	38° 8' 2.4	55° 45' 0.18	45° 2' 0.1	25° 67' 0.10	64° 9' 3.7
26	38° 39' 0.20	36° 4' 2.4	55° 63' 0.22	45° 3' 0.3	25° 77' 0.17	61° 2' 3.5
36	38° 59' 0.20	34° 0' 2.4	55° 85' 0.22	45° 6' 0.3	25° 94' 0.17	57° 7' 3.5

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Ophiuchi.		μ Herculis.	
	R. A.	Dec. North.	R. A.	Dec. North.
	^h 17	[°] 12	^h 17	[°] 27
Jan. 1	^m 28 ^s 46.72	['] 39 ["] 36.7	^m 41 ^s 15.75	['] 48 ["] 4.1
11	46.91	34.4	15.92	48 1.2
21	47.12	32.3	16.13	47 58.5
31	47.37	30.4	16.37	56.1
Feb. 10	47.64	28.7	16.64	54.0
20	47.92	27.4	16.92	52.3
Mar. 1	48.20	26.4	17.22	51.1
11	48.49	25.9	17.53	50.5
21	48.77	25.8	17.83	50.3
31	49.05	26.1	18.13	50.7
Apr. 10	49.32	26.8	18.41	51.6
20	49.57	27.8	18.68	53.0
30	49.80	29.2	18.93	54.8
May 10	50.01	30.8	19.15	56.9
20	50.19	32.5	19.35	47 59.2
30	50.35	34.4	19.51	48 1.7
June 9	50.47	36.3	19.63	4.3
19	50.55	38.2	19.72	6.8
29	50.60	40.0	19.76	9.3
July 9	50.61	41.7	19.76	11.7
19	50.58	43.3	19.71	13.8
29	50.52	44.6	19.63	15.7
Aug. 8	50.42	45.7	19.51	17.3
18	50.28	46.6	19.35	18.6
28	50.12	47.2	19.16	19.5
Sept. 7	49.94	47.6	18.95	20.1
17	49.75	47.7	18.73	20.2
27	49.56	47.5	18.51	20.0
Oct. 7	49.38	47.0	18.29	19.3
17	49.21	46.2	18.09	18.3
27	49.07	45.1	17.91	16.9
Nov. 6	48.97	43.8	17.77	15.1
16	48.91	42.2	17.68	13.0
26	48.90	40.3	17.63	10.6
Dec. 6	48.93	38.3	17.62	7.9
16	49.02	35.9	{17.51}	{4.7}
26	49.14	33.6	17.79	48 1.8
36	28 49.31	39 31.3	41 17.94	47 58.8

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	γ Draconis.		σ Octantis.	
	R. A.	Dec. North.	R. A.	Dec. South.
	^h 17 ^m	[°] 51 [']	^h 18 ^m	[°] 89 [']
Jan. 1	53 30.17	30 24.2	0 44.73	16 30.5
11	30.34	20.7	0 53.44	27.5
21	30.56	17.4	1 5.08	24.7
31	30.84	14.4	19.28	22.2
				16.36
Feb. 10	31.16	11.8	35.64	20.2
20	31.52	9.8	1 53.70	18.6
Mar. 1	31.90	8.3	2 13.00	17.4
11	32.30	7.5	33.08	16.8
				20.37
21	32.70	7.3	2 53.45	16.6
31	33.09	7.8	3 13.68	16.9
Apr. 10	33.47	8.9	33.32	17.7
20	33.83	10.6	3 51.96	19.0
				17.28
30	34.15	12.7	4 9.24	20.7
May 10	34.43	15.3	24.75	22.7
20	34.67	18.2	38.21	25.1
30	34.86	21.3	49.29	27.8
				8.45
June 9	34.99	24.5	4 57.74	30.7
19	35.06	27.7	5 3.39	33.8
29	35.08	30.9	6.08	36.9
July 9	35.03	33.9	5.75	40.1
				3.33
19	34.92	36.7	5 2.42	43.1
29	34.76	39.2	4 56.17	46.0
Aug. 8	34.55	41.4	47.21	48.6
18	34.29	43.1	35.78	50.8
				13.49
28	33.99	44.4	22.29	52.5
Sept. 7	33.67	45.3	4 7.19	53.8
17	33.33	45.7	3 51.01	54.5
27	32.97	45.5	34.34	54.6
				16.48
Oct. 7	32.62	44.9	17.86	54.0
17	32.30	43.7	3 2.16	52.8
27	32.01	42.0	2 47.93	51.2
Nov. 6	31.76	39.9	35.70	49.0
				9.69
16	31.55	37.4	26.01	46.4
26	31.40	34.5	19.28	43.6
Dec. 6	31.32	31.2	15.79	40.5
16	31.31	27.7	15.70	37.3
				3.79
26	31.37	23.8	19.49	33.7
36	53 31.50	30 20.3	2 26.53	30.6

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	μ Sagittarii.		α Lyrae (Vega)		β Lyrae.	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 18 ^m 5	[°] 21 ['] 5	^h 18 ^m 32	[°] 38 ['] 39	^h 18 ^m 45	[°] 33 ['] 12
Jan. 1	50° 19' 0.18	17° 1' 0.2	26° 19' 0.11	51° 9' 3.1	10° 47' 0.11	46° 6' 3.0
11	50° 37' 0.22	17° 3' 0.3	26° 30' 0.16	48° 8' 3.1	10° 58' 0.15	43° 6' 2.9
21	50° 59' 0.25	17° 6' 0.3	26° 46' 0.20	45° 7' 2.9	10° 73' 0.18	40° 7' 2.7
31	50° 84' 0.27	17° 9' 0.3	26° 66' 0.24	42° 8' 2.6	10° 91' 0.22	38° 0' 2.4
Feb. 10	51° 11' 0.28	18° 2' 0.3	26° 90' 0.28	40° 2' 2.1	11° 13' 0.25	35° 6' 2.1
20	51° 39' 0.30	18° 5' 0.2	27° 18' 0.30	38° 1' 1.6	11° 38' 0.28	33° 5' 1.6
Mar. 1	51° 69' 0.31	18° 7' 0.1	27° 48' 0.31	36° 5' 1.1	11° 66' 0.30	31° 9' 1.1
11	52° 00' 0.30	18° 8' 0.0	27° 79' 0.33	35° 4' 0.4	11° 96' 0.30	30° 8' 0.6
21	52° 30' 0.31	18° 8' 0.0	28° 12' 0.33	35° 0' 0.1	12° 26' 0.32	30° 2' 0.1
31	52° 61' 0.30	18° 8' 0.1	28° 45' 0.33	35° 1' 0.7	12° 58' 0.31	30° 3' 0.6
Apr. 10	52° 91' 0.30	18° 7' 0.3	28° 78' 0.32	35° 8' 1.2	12° 89' 0.31	30° 9' 1.1
20	53° 21' 0.28	18° 4' 0.3	29° 10' 0.31	37° 0' 1.8	13° 20' 0.30	32° 0' 1.6
30	53° 49' 0.26	18° 1' 0.2	29° 41' 0.28	38° 8' 2.2	13° 50' 0.28	33° 6' 2.0
May 10	53° 75' 0.24	17° 9' 0.3	29° 69' 0.25	41° 0' 2.5	13° 78' 0.25	35° 6' 2.4
20	53° 99' 0.22	17° 6' 0.3	29° 94' 0.22	43° 5' 2.8	14° 03' 0.22	38° 0' 2.6
30	54° 21' 0.18	17° 3' 0.2	30° 16' 0.18	46° 3' 2.9	14° 25' 0.19	40° 6' 2.8
June 9	54° 39' 0.15	17° 1' 0.1	30° 34' 0.13	49° 2' 3.0	14° 44' 0.15	43° 4' 2.8
19	54° 54' 0.11	17° 0' 0.1	30° 47' 0.08	52° 2' 3.0	14° 59' 0.10	46° 2' 2.9
29	54° 65' 0.06	16° 9' 0.0	30° 55' 0.04	55° 2' 3.0	14° 69' 0.06	49° 1' 2.8
July 9	54° 71' 0.02	16° 9' 0.0	30° 59' 0.02	58° 2' 2.8	14° 75' 0.01	51° 9' 2.7
19	54° 73' 0.02	16° 9' 0.1	30° 57' 0.06	61° 0' 2.5	14° 76' 0.04	54° 6' 2.5
29	54° 71' 0.06	17° 0' 0.1	30° 51' 0.11	63° 5' 2.3	14° 72' 0.09	57° 1' 2.2
Aug. 8	54° 65' 0.11	17° 1' 0.2	30° 40' 0.16	65° 8' 2.0	14° 63' 0.13	59° 3' 1.9
18	54° 54' 0.14	17° 3' 0.1	30° 24' 0.20	67° 8' 1.6	14° 50' 0.16	61° 2' 1.6
28	54° 40' 0.16	17° 4' 0.2	30° 04' 0.22	69° 4' 1.1	14° 34' 0.20	62° 8' 1.2
Sept. 7	54° 24' 0.18	17° 6' 0.1	29° 82' 0.25	70° 5' 0.8	14° 14' 0.23	64° 0' 0.8
17	54° 06' 0.20	17° 7' 0.1	29° 57' 0.26	71° 3' 0.3	13° 91' 0.24	64° 8' 0.4
27	53° 86' 0.19	17° 8' 0.0	29° 31' 0.27	71° 6' 0.2	13° 67' 0.24	65° 2' 0.1
Oct. 7	53° 67' 0.17	17° 8' 0.0	29° 04' 0.26	71° 4' 0.6	13° 43' 0.23	65° 1' 0.5
17	53° 50' 0.15	17° 8' 0.0	28° 78' 0.23	70° 8' 1.1	13° 20' 0.22	64° 6' 0.9
27	53° 35' 0.12	17° 8' 0.0	28° 55' 0.21	69° 7' 1.5	12° 98' 0.19	63° 7' 1.4
Nov. 6	53° 23' 0.07	17° 8' 0.0	28° 34' 0.17	68° 2' 2.0	12° 79' 0.17	62° 3' 1.8
16	53° 16' 0.03	17° 8' 0.1	28° 17' 0.13	66° 2' 2.3	12° 62' 0.12	60° 5' 2.1
26	53° 13' 0.02	17° 7' 0.1	28° 04' 0.08	63° 9' 2.7	12° 50' 0.07	58° 4' 2.5
Dec. 6	53° 15' 0.06	17° 8' 0.2	27° 96' 0.03	61° 2' 3.0	12° 43' 0.03	55° 9' 2.7
16	53° 21' 0.13	18° 0' 0.2	27° 93' 0.03	58° 2' 3.1	12° 40' 0.02	53° 2' 2.9
26	53° 34' 0.17	18° 2' 0.2	27° 96' 0.09	55° 1' 3.5	12° 42' 0.08	50° 3' 3.3
36	53° 51' 0.17	18° 4' 0.2	28° 05' 0.09	51° 6' 3.5	12° 50' 0.08	47° 0' 3.3

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	ζ Aquilæ.			ω Aquilæ.			δ Aquilæ.		
	R. A.	Dec. North.		R. A.	Dec. North.		R. A.	Dec. North.	
	^h 18 ^m 59	[°] 13 ['] 40		^h 19 ^m 11	[°] 11 ['] 21		^h 19 ^m 18	[°] 2 ['] 51	
Jan. 1	18 ^h 72 ^m 0 ^s	17 [°] 6 ['] 0 ["]		35 ^h 49 ^m 0 ^s	40 [°] 9 ['] 0 ["]		48 ^h 78 ^m 0 ^s	20 [°] 7 ['] 0 ["]	
11	18 ^h 82 ^m 10 ^s	15 [°] 3 ['] 2 ["]		35 ^h 59 ^m 10 ^s	38 [°] 7 ['] 2 ["]		48 ^h 87 ^m 09 ^s	19 [°] 1 ['] 6 ["]	
21	18 ^h 96 ^m 14 ^s	13 [°] 2 ['] 1 ["]		35 ^h 71 ^m 12 ^s	36 [°] 8 ['] 1 ["]		48 ^h 99 ^m 12 ^s	17 [°] 7 ['] 4 ["]	
31	19 ^h 13 ^m 17 ^s	11 [°] 3 ['] 1 ["]		35 ^h 87 ^m 16 ^s	35 [°] 0 ['] 1 ["]		49 ^h 15 ^m 16 ^s	16 [°] 4 ['] 1 ["]	
		0 ^h 20			0 ^h 19			0 ^h 19	
Feb. 10	19 ^h 33 ^m 0 ^s	9 [°] 6 ['] 1 ["]		36 ^h 06 ^m 19 ^s	33 [°] 4 ['] 1 ["]		49 ^h 34 ^m 19 ^s	15 [°] 2 ['] 1 ["]	
20	19 ^h 56 ^m 23 ^s	8 [°] 1 ['] 5 ["]		36 ^h 28 ^m 22 ^s	32 [°] 0 ['] 1 ["]		49 ^h 55 ^m 21 ^s	14 [°] 2 ['] 1 ["]	
Mar. 1	19 ^h 80 ^m 24 ^s	7 [°] 0 ['] 1 ["]		36 ^h 51 ^m 23 ^s	31 [°] 0 ['] 1 ["]		49 ^h 79 ^m 24 ^s	13 [°] 5 ['] 0 ["]	
11	20 ^h 06 ^m 26 ^s	6 [°] 3 ['] 0 ["]		36 ^h 77 ^m 26 ^s	30 [°] 3 ['] 0 ["]		50 ^h 04 ^m 25 ^s	13 [°] 1 ['] 0 ["]	
		0 ^h 28			0 ^h 27			0 ^h 26	
21	20 ^h 34 ^m 28 ^s	6 [°] 0 ['] 0 ["]		37 ^h 04 ^m 27 ^s	30 [°] 0 ['] 0 ["]		50 ^h 30 ^m 26 ^s	13 [°] 0 ['] 0 ["]	
31	20 ^h 62 ^m 28 ^s	6 [°] 1 ['] 0 ["]		37 ^h 32 ^m 28 ^s	30 [°] 2 ['] 0 ["]		50 ^h 58 ^m 28 ^s	13 [°] 3 ['] 0 ["]	
Apr. 10	20 ^h 91 ^m 29 ^s	6 [°] 6 ['] 0 ["]		37 ^h 60 ^m 28 ^s	30 [°] 7 ['] 0 ["]		50 ^h 86 ^m 29 ^s	13 [°] 8 ['] 0 ["]	
20	21 ^h 19 ^m 28 ^s	7 [°] 6 ['] 1 ["]		37 ^h 88 ^m 28 ^s	31 [°] 6 ['] 0 ["]		51 ^h 15 ^m 29 ^s	14 [°] 7 ['] 0 ["]	
		0 ^h 28			0 ^h 29			0 ^h 28	
30	21 ^h 47 ^m 26 ^s	8 [°] 9 ['] 1 ["]		38 ^h 17 ^m 27 ^s	32 [°] 9 ['] 1 ["]		51 ^h 43 ^m 28 ^s	15 [°] 8 ['] 1 ["]	
May 10	21 ^h 73 ^m 25 ^s	10 [°] 5 ['] 1 ["]		38 ^h 44 ^m 26 ^s	34 [°] 4 ['] 1 ["]		51 ^h 71 ^m 26 ^s	17 [°] 2 ['] 1 ["]	
20	21 ^h 98 ^m 23 ^s	12 [°] 3 ['] 2 ["]		38 ^h 70 ^m 23 ^s	36 [°] 1 ['] 1 ["]		51 ^h 97 ^m 25 ^s	18 [°] 7 ['] 1 ["]	
30	22 ^h 21 ^m 20 ^s	14 [°] 3 ['] 2 ["]		38 ^h 93 ^m 21 ^s	38 [°] 0 ['] 2 ["]		52 ^h 22 ^m 22 ^s	20 [°] 3 ['] 1 ["]	
		0 ^h 20			0 ^h 21			0 ^h 22	
June 9	22 ^h 41 ^m 17 ^s	16 [°] 4 ['] 2 ["]		39 ^h 14 ^m 18 ^s	40 [°] 1 ['] 2 ["]		52 ^h 44 ^m 19 ^s	22 [°] 0 ['] 1 ["]	
19	22 ^h 58 ^m 13 ^s	18 [°] 6 ['] 2 ["]		39 ^h 32 ^m 15 ^s	42 [°] 2 ['] 2 ["]		52 ^h 63 ^m 15 ^s	23 [°] 7 ['] 1 ["]	
29	22 ^h 71 ^m 09 ^s	20 [°] 7 ['] 2 ["]		39 ^h 47 ^m 10 ^s	44 [°] 2 ['] 2 ["]		52 ^h 78 ^m 12 ^s	25 [°] 4 ['] 1 ["]	
July 9	22 ^h 80 ^m 05 ^s	22 [°] 8 ['] 1 ["]		39 ^h 57 ^m 06 ^s	46 [°] 2 ['] 1 ["]		52 ^h 90 ^m 07 ^s	26 [°] 9 ['] 1 ["]	
		0 ^h 05			0 ^h 06			0 ^h 07	
19	22 ^h 85 ^m 00 ^s	24 [°] 7 ['] 1 ["]		39 ^h 63 ^m 02 ^s	48 [°] 1 ['] 1 ["]		52 ^h 97 ^m 03 ^s	28 [°] 4 ['] 1 ["]	
29	22 ^h 85 ^m 04 ^s	26 [°] 4 ['] 1 ["]		39 ^h 65 ^m 03 ^s	49 [°] 8 ['] 1 ["]		53 ^h 00 ^m 01 ^s	29 [°] 7 ['] 1 ["]	
Aug. 8	22 ^h 81 ^m 08 ^s	28 [°] 0 ['] 1 ["]		39 ^h 62 ^m 07 ^s	51 [°] 3 ['] 1 ["]		52 ^h 99 ^m 05 ^s	30 [°] 8 ['] 0 ["]	
18	22 ^h 73 ^m 12 ^s	29 [°] 3 ['] 1 ["]		39 ^h 55 ^m 10 ^s	52 [°] 6 ['] 1 ["]		52 ^h 94 ^m 09 ^s	31 [°] 7 ['] 0 ["]	
		0 ^h 12			0 ^h 10			0 ^h 09	
28	22 ^h 61 ^m 15 ^s	30 [°] 3 ['] 0 ["]		39 ^h 45 ^m 14 ^s	53 [°] 6 ['] 0 ["]		52 ^h 85 ^m 13 ^s	32 [°] 4 ['] 0 ["]	
Sept. 7	22 ^h 46 ^m 17 ^s	31 [°] 1 ['] 0 ["]		39 ^h 31 ^m 17 ^s	54 [°] 4 ['] 0 ["]		52 ^h 72 ^m 15 ^s	33 [°] 0 ['] 0 ["]	
17	22 ^h 29 ^m 18 ^s	31 [°] 7 ['] 0 ["]		39 ^h 14 ^m 18 ^s	54 [°] 9 ['] 0 ["]		52 ^h 57 ^m 17 ^s	33 [°] 3 ['] 0 ["]	
27	22 ^h 11 ^m 20 ^s	32 [°] 0 ['] 0 ["]		38 ^h 96 ^m 18 ^s	55 [°] 2 ['] 0 ["]		52 ^h 40 ^m 18 ^s	33 [°] 4 ['] 0 ["]	
		0 ^h 20			0 ^h 18			0 ^h 18	
Oct. 7	21 ^h 91 ^m 19 ^s	31 [°] 9 ['] 0 ["]		38 ^h 78 ^m 19 ^s	55 [°] 2 ['] 0 ["]		52 ^h 22 ^m 18 ^s	33 [°] 3 ['] 0 ["]	
17	21 ^h 72 ^m 17 ^s	31 [°] 6 ['] 0 ["]		38 ^h 59 ^m 18 ^s	54 [°] 9 ['] 0 ["]		52 ^h 04 ^m 17 ^s	33 [°] 1 ['] 0 ["]	
27	21 ^h 55 ^m 15 ^s	30 [°] 9 ['] 0 ["]		38 ^h 41 ^m 15 ^s	54 [°] 3 ['] 0 ["]		51 ^h 87 ^m 15 ^s	32 [°] 6 ['] 0 ["]	
Nov. 6	21 ^h 40 ^m 13 ^s	30 [°] 0 ['] 1 ["]		38 ^h 26 ^m 13 ^s	53 [°] 4 ['] 1 ["]		51 ^h 72 ^m 12 ^s	31 [°] 9 ['] 0 ["]	
		0 ^h 13			0 ^h 11			0 ^h 12	
16	21 ^h 27 ^m 09 ^s	28 [°] 8 ['] 1 ["]		38 ^h 13 ^m 09 ^s	52 [°] 3 ['] 1 ["]		51 ^h 60 ^m 09 ^s	31 [°] 1 ['] 1 ["]	
26	21 ^h 18 ^m 05 ^s	27 [°] 3 ['] 1 ["]		38 ^h 04 ^m 06 ^s	51 [°] 0 ['] 1 ["]		51 ^h 51 ^m 05 ^s	30 [°] 0 ['] 1 ["]	
Dec. 6	21 ^h 13 ^m 01 ^s	25 [°] 6 ['] 1 ["]		37 ^h 98 ^m 02 ^s	49 [°] 4 ['] 1 ["]		51 ^h 46 ^m 01 ^s	28 [°] 8 ['] 1 ["]	
16	21 ^h 12 ^m 04 ^s	23 [°] 7 ['] 2 ["]		37 ^h 96 ^m 03 ^s	47 [°] 7 ['] 1 ["]		51 ^h 45 ^m 02 ^s	27 [°] 5 ['] 1 ["]	
		0 ^h 04			0 ^h 03			0 ^h 02	
26	21 ^h 16 ^m 08 ^s	21 [°] 6 ['] 2 ["]		37 ^h 99 ^m 06 ^s	45 [°] 8 ['] 1 ["]		51 ^h 47 ^m 07 ^s	26 [°] 1 ['] 1 ["]	
36	21 ^h 24 ^m 08 ^s	19 [°] 3 ['] 2 ["]		38 ^h 05 ^m 09 ^s	43 [°] 9 ['] 1 ["]		51 ^h 54 ^m 07 ^s	24 [°] 6 ['] 1 ["]	

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	<i>h</i> Sagittarii.		<i>γ</i> Aquilæ.		<i>α</i> Aquilæ. (<i>Altair</i>)	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 19	^m 28	^h 19	^m 39	^h 19	^m 44
	[°] 25	['] 10	[°] 10	['] 17	[°] 8	['] 31
Jan. 1	38° 14'	0° 11'	57° 33'	0° 05'	18° 86'	25° 2'
11	38° 25'	0° 11'	57° 38'	0° 11'	18° 92'	23° 5'
21	38° 39'	0° 17'	57° 49'	0° 13'	19° 03'	21° 7'
31	38° 56'	0° 21'	57° 62'	0° 17'	19° 16'	20° 1'
Feb. 10	38° 77'	0° 23'	57° 79'	0° 19'	19° 32'	18° 7'
20	39° 00'	0° 26'	57° 98'	0° 21'	19° 51'	17° 5'
Mar. 1	39° 26'	0° 28'	58° 19'	0° 24'	19° 72'	16° 5'
11	39° 54'	0° 29'	58° 43'	0° 26'	19° 96'	15° 9'
21	39° 83'	0° 31'	58° 69'	0° 27'	20° 21'	15° 7'
31	40° 14'	0° 31'	58° 96'	0° 28'	20° 48'	15° 9'
Apr. 10	40° 45'	0° 33'	59° 24'	0° 29'	20° 76'	16° 4'
20	40° 78'	0° 32'	59° 53'	0° 29'	21° 05'	17° 3'
30	41° 10'	0° 32'	59° 82'	0° 28'	21° 34'	18° 4'
May 10	41° 42'	0° 30'	60° 10'	0° 27'	21° 62'	19° 9'
20	41° 72'	0° 28'	60° 37'	0° 26'	21° 90'	21° 6'
30	42° 00'	0° 26'	60° 63'	0° 23'	22° 16'	23° 5'
June 9	42° 26'	0° 23'	60° 86'	0° 20'	22° 40'	25° 5'
19	42° 49'	0° 19'	61° 06'	0° 17'	22° 60'	27° 5'
29	42° 68'	0° 15'	61° 23'	0° 13'	22° 77'	29° 5'
July 9	42° 83'	0° 11'	61° 36'	0° 09'	22° 91'	31° 4'
19	42° 94'	0° 05'	61° 45'	0° 04'	23° 01'	33° 2'
29	42° 99'	0° 01'	61° 49'	0° 00'	23° 06'	34° 9'
Aug. 8	43° 00'	0° 04'	61° 49'	0° 04'	23° 06'	36° 4'
18	42° 96'	0° 09'	61° 45'	0° 08'	23° 03'	37° 7'
28	42° 87'	0° 12'	61° 87'	0° 12'	22° 95'	38° 7'
Sept. 7	42° 75'	0° 16'	61° 25'	0° 15'	22° 83'	39° 5'
17	42° 59'	0° 18'	61° 10'	0° 17'	22° 69'	40° 1'
27	42° 41'	0° 19'	60° 93'	0° 18'	22° 53'	40° 4'
Oct. 7	42° 22'	0° 19'	60° 75'	0° 18'	22° 35'	40° 5'
17	42° 03'	0° 18'	60° 57'	0° 18'	22° 17'	40° 4'
27	41° 85'	0° 16'	60° 39'	0° 16'	22° 00'	40° 0'
Nov. 6	41° 69'	0° 13'	60° 23'	0° 14'	21° 84'	39° 3'
16	41° 56'	0° 10'	60° 09'	0° 11'	21° 70'	38° 4'
26	41° 46'	0° 06'	59° 98'	0° 07'	21° 59'	37° 3'
Dec. 6	41° 40'	0° 01'	59° 91'	0° 04'	21° 52'	36° 0'
16	41° 39'	0° 03'	59° 87'	0° 00'	21° 48'	34° 5'
26	41° 42'	0° 08'	59° 87'	0° 04'	21° 48'	32° 9'
36	41° 50'	0° 08'	59° 91'	0° 04'	21° 52'	31° 2'

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	β Aquilæ			λ Ursæ Minoris		
	R. A.		Dec. North.	R. A.		Dec. North.
	^h 19		^o 6	^h 19		^o 88
Jan. 1	^m 48 ^s 48.03	^s 0.05	['] 4 ["] 51.1	^m 55 ^s 30.66	^s 4.60	['] 54 ["] 58.5
11	48.08	0.10	49.5	26.06	2.47	55.4
21	48.18	0.13	47.8	23.59	0.17	51.8
31	48.31	0.16	46.3	23.76	2.46	48.5
Feb. 10	48.47	0.18	45.0	26.22	4.60	45.3
20	48.65	0.21	43.9	30.82	8.56	42.4
Mar. 1	48.86	0.23	43.1	37.38	8.23	39.7
11	49.09	0.25	42.6	45.61	9.54	37.4
21	49.34	0.27	42.4	55.55.15	10.45	35.6
31	49.61	0.29	42.6	56.5.60	10.95	34.4
Apr. 10	49.90	0.28	43.1	16.55	11.04	33.8
20	50.18	0.29	44.0	27.59	10.71	33.8
30	50.47	0.28	45.1	38.30	10.01	34.5
May 10	50.75	0.26	46.5	48.31	8.97	35.7
20	51.03	0.24	48.1	56.57.28	7.67	37.4
30	51.29	0.21	49.9	57.4.95	6.10	39.6
June 9	51.53	0.18	51.8	11.05	4.40	42.2
19	51.74	0.14	53.7	15.45	2.57	45.1
29	51.92	0.10	55.5	18.02	0.67	48.2
July 9	52.06	0.06	57.3	18.69	1.24	51.4
19	52.16	0.01	59.0	17.45	3.11	54.7
29	52.22	0.04	60.6	14.34	4.92	58.0
Aug. 8	52.23	0.07	61.9	9.42	6.62	1.2
18	52.19	0.11	63.1	57.2.80	8.18	4.3
28	52.12	0.14	64.1	56.54.62	9.58	7.1
Sept. 7	52.01	0.17	64.9	45.04	10.79	9.6
17	51.87	0.17	65.4	34.25	11.79	11.8
27	51.71	0.17	65.6	22.46	12.53	13.6
Oct. 7	51.54	0.18	65.5	56.9.93	13.04	14.9
17	51.36	0.16	65.3	55.56.89	13.25	15.8
27	51.19	0.14	64.9	43.64	13.14	16.2
Nov. 6	51.03	0.11	64.2	30.50	12.68	16.0
16	50.89	0.07	63.3	17.82	11.98	15.3
26	50.78	0.04	62.3	55.5.84	10.86	14.0
Dec. 6	50.71	0.00	61.1	54.54.98	9.44	12.2
16	50.67	0.03	59.7	45.54	7.71	10.0
26	50.67	0.03	58.2	37.83	5.74	7.4
36	50.70	0.03	56.6	54.32.09	5.74	4.4

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Capricorni.		α Pavonis.		ρ Capricorni.	
	R.A.	Dec. South.	R.A.	Dec. South.	R.A.	Dec. South.
	^h 20	^m 10	^h 20	^m 15	^h 20	^m 21
	[°] 12	['] 56	[°] 57	['] 8	[°] 18	['] 14
Jan. 1	41° 87' 8"	63° 6' 8"	8° 21' 8"	77° 5' 8"	17° 71' 8"	49° 7' 8"
11	41° 92' 0° 05	64° 0' 0° 4	8° 25' 0° 04	75° 3' 2° 2	17° 75' 0° 04	49° 8' 0° 1
21	42° 01' 0° 09	64° 4' 0° 4	8° 30' 0° 11	75° 3' 2° 3	17° 82' 0° 07	49° 8' 0° 0
31	42° 12' 0° 11	64° 6' 0° 2	8° 37' 0° 18	75° 3' 2° 3	17° 82' 0° 12	49° 8' 0° 1
	0° 15	0° 2	0° 24	2° 4	0° 15	0° 2
Feb. 10	42° 27' 0° 18	64° 8' 0° 0	8° 39' 0° 30	68° 0' 2° 2	18° 09' 0° 17	49° 5' 0° 4
20	42° 45' 0° 21	64° 8' 0° 2	9° 09' 0° 35	65° 8' 2° 2	18° 26' 0° 20	49° 1' 0° 4
Mar. 1	42° 66' 0° 22	64° 6' 0° 3	9° 44' 0° 39	63° 6' 2° 1	18° 46' 0° 23	48° 7' 0° 6
11	42° 88' 0° 25	64° 3' 0° 5	9° 53' 0° 42	61° 5' 1° 8	18° 69' 0° 25	48° 1' 0° 8
	0° 27	0° 7	0° 46	1° 7	0° 27	0° 9
21	43° 13' 0° 27	63° 8' 0° 9	10° 25' 0° 49	58° 0' 1° 4	18° 94' 0° 29	47° 3' 1° 0
31	43° 40' 0° 29	63° 1' 1° 0	10° 71' 0° 50	56° 6' 1° 0	19° 21' 0° 30	46° 4' 1° 1
Apr. 10	43° 69' 0° 30	62° 2' 1° 1	11° 20' 0° 51	55° 6' 0° 8	19° 50' 0° 31	45° 4' 1° 2
20	43° 98' 0° 31	61° 2' 0° 5	11° 70' 0° 51	55° 6' 0° 5	19° 80' 0° 28	44° 3' 0° 5
	0° 31	0° 5	0° 51	0° 5	0° 31	0° 5
30	44° 28' 0° 31	60° 1' 1° 2	12° 21' 0° 51	54° 8' 0° 5	20° 11' 0° 31	43° 1' 1° 1
May 10	44° 59' 0° 30	58° 9' 1° 3	12° 72' 0° 50	54° 3' 0° 1	20° 42' 0° 31	42° 0' 1° 2
20	44° 89' 0° 28	57° 6' 1° 2	13° 22' 0° 48	54° 2' 0° 2	20° 73' 0° 30	40° 8' 1° 1
30	45° 17' 0° 27	56° 4' 1° 2	13° 70' 0° 44	54° 4' 0° 5	21° 03' 0° 28	39° 7' 1° 1
	0° 24	0° 1	0° 40	0° 9	0° 25	0° 9
June 9	45° 44' 0° 24	55° 2' 1° 1	14° 14' 0° 36	55° 8' 1° 3	21° 31' 0° 23	37° 7' 0° 8
19	45° 68' 0° 21	54° 1' 1° 0	14° 54' 0° 29	57° 1' 1° 5	21° 56' 0° 19	36° 9' 0° 6
29	45° 89' 0° 18	53° 1' 0° 7	15° 19' 0° 22	58° 6' 1° 8	21° 98' 0° 15	36° 3' 0° 4
July 9	46° 07' 0° 13	52° 2' 0° 7	15° 41' 0° 14	60° 4' 1° 9	22° 13' 0° 10	35° 9' 0° 2
	0° 09	0° 5	0° 14	1° 9	0° 10	0° 2
19	46° 29' 0° 04	51° 0' 0° 3	15° 55' 0° 06	62° 3' 2° 0	22° 23' 0° 05	35° 7' 0° 1
Aug. 8	46° 33' 0° 00	50° 7' 0° 2	15° 61' 0° 02	64° 3' 2° 1	22° 28' 0° 01	35° 6' 0° 1
18	46° 33' 0° 05	50° 5' 0° 1	15° 59' 0° 09	66° 4' 2° 1	22° 29' 0° 03	35° 7' 0° 2
	0° 08	0° 1	0° 16	2° 1	0° 03	0° 2
28	46° 28' 0° 08	50° 4' 0° 1	15° 50' 0° 22	68° 5' 1° 9	22° 26' 0° 08	35° 9' 0° 4
Sept. 7	46° 20' 0° 12	50° 5' 0° 2	15° 34' 0° 28	70° 4' 1° 8	22° 18' 0° 11	36° 3' 0° 4
17	46° 08' 0° 15	50° 7' 0° 3	15° 12' 0° 28	72° 2' 1° 5	22° 07' 0° 15	36° 7' 0° 5
27	45° 93' 0° 17	51° 0' 0° 4	14° 84' 0° 31	73° 7' 1° 1	21° 92' 0° 17	37° 2' 0° 5
	0° 17	0° 4	0° 31	1° 1	0° 17	0° 5
Oct. 7	45° 76' 0° 17	51° 4' 0° 4	14° 53' 0° 33	74° 8' 0° 8	21° 75' 0° 17	37° 7' 0° 5
17	45° 59' 0° 16	51° 8' 0° 4	14° 20' 0° 33	75° 6' 0° 4	21° 58' 0° 17	38° 2' 0° 5
27	45° 43' 0° 16	52° 2' 0° 5	13° 87' 0° 32	76° 0' 0° 0	21° 41' 0° 16	38° 7' 0° 5
Nov. 6	45° 27' 0° 14	52° 7' 0° 5	13° 55' 0° 29	76° 0' 0° 5	21° 25' 0° 15	39° 2' 0° 3
	0° 12	0° 4	0° 25	0° 9	0° 12	0° 4
16	45° 01' 0° 08	53° 6' 0° 5	13° 01' 0° 19	74° 6' 1° 3	20° 98' 0° 09	39° 9' 0° 3
Dec. 6	44° 93' 0° 04	54° 1' 0° 5	12° 82' 0° 13	73° 3' 1° 6	20° 89' 0° 06	40° 2' 0° 2
16	44° 89' 0° 01	54° 6' 0° 5	12° 69' 0° 06	71° 7' 1° 8	20° 83' 0° 02	40° 4' 0° 2
	0° 02	0° 4	0° 01	2° 1	0° 03	0° 1
26	44° 88' 0° 02	55° 1' 0° 4	12° 63' 0° 01	69° 9' 2° 1	20° 81' 0° 03	40° 6' 0° 1
36	44° 90' 0° 02	55° 5' 0° 4	12° 64' 0° 01	67° 8' 2° 1	20° 84' 0° 03	40° 7' 0° 1

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Cygni.		32 Vulpeculæ.		61 ^r Cygni.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 20 ^m 36	[°] 44 ['] 48	^h 20 ^m 48	[°] 27 ['] 33	^h 21 ^m 0	[°] 38 ['] 5
Jan. 1	54 ^s .34 ^s 0 ^s .05	47 ^s .2 ^s 2 ^s .8	54 ^s .66 ^s 0 ^s .03	34 ^s .3 ^s 2 ^s .3	57 ^s .26 ^s 0 ^s .06	77 ^s .2 ^s 2 ^s .5
11	54 ^s .29 ^s 0 ^s .01	44 ^s .4 ^s 3 ^s .1	54 ^s .63 ^s 0 ^s .01	32 ^s .0 ^s 2 ^s .4	57 ^s .20 ^s 0 ^s .01	74 ^s .7 ^s 2 ^s .5
21	54 ^s .28 ^s 0 ^s .04	41 ^s .3 ^s 3 ^s .3	54 ^s .64 ^s 0 ^s .05	29 ^s .6 ^s 2 ^s .6	57 ^s .19 ^s 0 ^s .03	72 ^s .2 ^s 2 ^s .7
31	54 ^s .32 ^s 0 ^s .10	38 ^s .0 ^s 3 ^s .0	54 ^s .69 ^s 0 ^s .09	27 ^s .0 ^s 2 ^s .4	57 ^s .22 ^s 0 ^s .08	69 ^s .5 ^s 2 ^s .9
Feb. 10	54 ^s .42 ^s 0 ^s .14	35 ^s .0 ^s 2 ^s .8	54 ^s .78 ^s 0 ^s .13	24 ^s .6 ^s 2 ^s .1	57 ^s .30 ^s 0 ^s .12	66 ^s .6 ^s 2 ^s .5
20	54 ^s .56 ^s 0 ^s .20	32 ^s .2 ^s 2 ^s .4	54 ^s .91 ^s 0 ^s .16	22 ^s .5 ^s 1 ^s .8	57 ^s .42 ^s 0 ^s .16	64 ^s .1 ^s 2 ^s .2
Mar. 1	54 ^s .76 ^s 0 ^s .24	29 ^s .8 ^s 2 ^s .1	55 ^s .07 ^s 0 ^s .19	20 ^s .7 ^s 1 ^s .5	57 ^s .58 ^s 0 ^s .21	61 ^s .9 ^s 1 ^s .8
11	55 ^s .00 ^s 0 ^s .27	27 ^s .7 ^s 1 ^s .6	55 ^s .26 ^s 0 ^s .23	19 ^s .2 ^s 1 ^s .0	57 ^s .79 ^s 0 ^s .25	60 ^s .1 ^s 1 ^s .4
21	55 ^s .27 ^s 0 ^s .31	26 ^s .1 ^s 1 ^s .0	55 ^s .49 ^s 0 ^s .26	18 ^s .2 ^s 0 ^s .6	58 ^s .04 ^s 0 ^s .27	58 ^s .7 ^s 0 ^s .9
31	55 ^s .58 ^s 0 ^s .34	25 ^s .1 ^s 0 ^s .4	55 ^s .75 ^s 0 ^s .27	17 ^s .6 ^s 0 ^s .1	58 ^s .31 ^s 0 ^s .31	57 ^s .8 ^s 0 ^s .4
Apr. 10	55 ^s .92 ^s 0 ^s .36	24 ^s .7 ^s 0 ^s .2	56 ^s .02 ^s 0 ^s .30	17 ^s .5 ^s 0 ^s .4	58 ^s .62 ^s 0 ^s .33	57 ^s .4 ^s 0 ^s .2
20	56 ^s .28 ^s 0 ^s .36	24 ^s .9 ^s 0 ^s .7	56 ^s .32 ^s 0 ^s .31	17 ^s .9 ^s 0 ^s .9	58 ^s .95 ^s 0 ^s .34	57 ^s .6 ^s 0 ^s .7
30	56 ^s .64 ^s 0 ^s .36	25 ^s .6 ^s 1 ^s .3	56 ^s .63 ^s 0 ^s .31	18 ^s .8 ^s 1 ^s .4	59 ^s .29 ^s 0 ^s .36	58 ^s .3 ^s 1 ^s .3
May 10	57 ^s .00 ^s 0 ^s .36	26 ^s .9 ^s 1 ^s .8	56 ^s .94 ^s 0 ^s .32	20 ^s .2 ^s 1 ^s .7	59 ^s .65 ^s 0 ^s .35	59 ^s .6 ^s 1 ^s .7
20	57 ^s .36 ^s 0 ^s .34	28 ^s .7 ^s 2 ^s .2	57 ^s .26 ^s 0 ^s .30	21 ^s .9 ^s 2 ^s .1	60 ^s .00 ^s 0 ^s .34	61 ^s .3 ^s 2 ^s .1
30	57 ^s .70 ^s 0 ^s .31	30 ^s .9 ^s 2 ^s .6	57 ^s .56 ^s 0 ^s .28	24 ^s .0 ^s 2 ^s .4	60 ^s .34 ^s 0 ^s .32	63 ^s .4 ^s 2 ^s .5
June 9	58 ^s .01 ^s 0 ^s .28	33 ^s .5 ^s 2 ^s .9	57 ^s .84 ^s 0 ^s .26	26 ^s .4 ^s 2 ^s .6	60 ^s .66 ^s 0 ^s .29	65 ^s .9 ^s 2 ^s .8
19	58 ^s .29 ^s 0 ^s .23	36 ^s .4 ^s 3 ^s .1	58 ^s .10 ^s 0 ^s .23	29 ^s .0 ^s 2 ^s .7	60 ^s .95 ^s 0 ^s .25	68 ^s .7 ^s 3 ^s .0
29	58 ^s .52 ^s 0 ^s .18	39 ^s .5 ^s 3 ^s .3	58 ^s .33 ^s 0 ^s .19	31 ^s .7 ^s 2 ^s .8	61 ^s .20 ^s 0 ^s .22	71 ^s .7 ^s 3 ^s .2
July 9	58 ^s .70 ^s 0 ^s .13	42 ^s .8 ^s 3 ^s .3	58 ^s .52 ^s 0 ^s .14	34 ^s .5 ^s 2 ^s .7	61 ^s .42 ^s 0 ^s .17	74 ^s .9 ^s 3 ^s .2
19	58 ^s .83 ^s 0 ^s .08	46 ^s .1 ^s 3 ^s .2	58 ^s .66 ^s 0 ^s .10	37 ^s .2 ^s 2 ^s .7	61 ^s .59 ^s 0 ^s .11	78 ^s .1 ^s 3 ^s .2
29	58 ^s .91 ^s 0 ^s .01	49 ^s .3 ^s 3 ^s .1	58 ^s .76 ^s 0 ^s .05	39 ^s .9 ^s 2 ^s .6	61 ^s .70 ^s 0 ^s .07	81 ^s .3 ^s 3 ^s .1
Aug. 8	58 ^s .92 ^s 0 ^s .04	52 ^s .4 ^s 3 ^s .0	58 ^s .81 ^s 0 ^s .00	42 ^s .5 ^s 2 ^s .4	61 ^s .77 ^s 0 ^s .01	84 ^s .4 ^s 2 ^s .9
18	58 ^s .88 ^s 0 ^s .10	55 ^s .4 ^s 2 ^s .8	58 ^s .81 ^s 0 ^s .04	44 ^s .9 ^s 2 ^s .2	61 ^s .78 ^s 0 ^s .04	87 ^s .3 ^s 2 ^s .7
28	58 ^s .78 ^s 0 ^s .14	58 ^s .2 ^s 2 ^s .4	58 ^s .77 ^s 0 ^s .09	47 ^s .1 ^s 1 ^s .9	61 ^s .74 ^s 0 ^s .08	90 ^s .0 ^s 2 ^s .5
Sept. 7	58 ^s .64 ^s 0 ^s .19	60 ^s .6 ^s 2 ^s .1	58 ^s .68 ^s 0 ^s .12	49 ^s .0 ^s 1 ^s .5	61 ^s .66 ^s 0 ^s .13	92 ^s .5 ^s 2 ^s .2
17	58 ^s .45 ^s 0 ^s .22	62 ^s .7 ^s 1 ^s .8	58 ^s .56 ^s 0 ^s .15	50 ^s .5 ^s 1 ^s .3	61 ^s .53 ^s 0 ^s .16	94 ^s .7 ^s 1 ^s .8
27	58 ^s .23 ^s 0 ^s .25	64 ^s .5 ^s 1 ^s .3	58 ^s .41 ^s 0 ^s .18	51 ^s .8 ^s 0 ^s .9	61 ^s .37 ^s 0 ^s .19	96 ^s .5 ^s 1 ^s .4
Oct. 7	57 ^s .98 ^s 0 ^s .27	65 ^s .8 ^s 0 ^s .8	58 ^s .23 ^s 0 ^s .19	52 ^s .7 ^s 0 ^s .6	61 ^s .18 ^s 0 ^s .21	97 ^s .9 ^s 1 ^s .0
17	57 ^s .71 ^s 0 ^s .27	66 ^s .6 ^s 0 ^s .3	58 ^s .04 ^s 0 ^s .20	53 ^s .3 ^s 0 ^s .1	60 ^s .97 ^s 0 ^s .22	98 ^s .9 ^s 0 ^s .6
27	57 ^s .44 ^s 0 ^s .27	66 ^s .9 ^s 0 ^s .2	57 ^s .84 ^s 0 ^s .19	53 ^s .4 ^s 0 ^s .3	60 ^s .75 ^s 0 ^s .22	99 ^s .5 ^s 0 ^s .1
Nov. 6	57 ^s .17 ^s 0 ^s .26	66 ^s .7 ^s 0 ^s .6	57 ^s .65 ^s 0 ^s .19	53 ^s .1 ^s 0 ^s .6	60 ^s .53 ^s 0 ^s .21	99 ^s .6 ^s 0 ^s .4
16	56 ^s .91 ^s 0 ^s .24	66 ^s .1 ^s 1 ^s .2	57 ^s .46 ^s 0 ^s .17	52 ^s .5 ^s 1 ^s .0	60 ^s .32 ^s 0 ^s .20	99 ^s .2 ^s 0 ^s .9
26	56 ^s .67 ^s 0 ^s .21	64 ^s .9 ^s 1 ^s .6	57 ^s .29 ^s 0 ^s .14	51 ^s .5 ^s 1 ^s .4	60 ^s .12 ^s 0 ^s .18	98 ^s .3 ^s 1 ^s .3
Dec. 6	56 ^s .46 ^s 0 ^s .17	63 ^s .3 ^s 2 ^s .1	57 ^s .15 ^s 0 ^s .12	50 ^s .1 ^s 1 ^s .8	59 ^s .94 ^s 0 ^s .15	97 ^s .0 ^s 1 ^s .6
16	56 ^s .29 ^s 0 ^s .13	61 ^s .2 ^s 2 ^s .4	57 ^s .03 ^s 0 ^s .08	48 ^s .3 ^s 2 ^s .0	59 ^s .79 ^s 0 ^s .11	95 ^s .4 ^s 2 ^s .1
26	56 ^s .16 ^s 0 ^s .08	58 ^s .8 ^s 2 ^s .8	56 ^s .95 ^s 0 ^s .05	46 ^s .3 ^s 2 ^s .2	59 ^s .68 ^s 0 ^s .07	93 ^s .3 ^s 2 ^s .4
36	56 ^s .08 ^s	56 ^s .0 ^s	56 ^s .90 ^s	44 ^s .1 ^s	59 ^s .61 ^s	90 ^s .9 ^s

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	ζ Cygni.			α Cephei.			β Aquarii.		
	R. A.		Dec. North.	R. A.		Dec. North.	R. A.		Dec. South.
	^h 21	^m 7	[°] 29 ['] 41	^h 21	^m 15	[°] 62 ['] 1	^h 21	^m 24	[°] 6 ['] 8
Jan. 1	17 ^s .76	0 ^s .05	21 ^s .4	24 ^s .09	0 ^s .22	51 ^s .0	34 ^s .96	0 ^s .02	60 ^s .2
11	17 ^s .71	0 ^s .02	19 ^s .1	23 ^s .87	0 ^s .15	48 ^s .2	34 ^s .94	0 ^s .01	60 ^s .9
21	17 ^s .69	0 ^s .03	16 ^s .7	23 ^s .72	0 ^s .07	45 ^s .2	34 ^s .95	0 ^s .03	61 ^s .5
31	17 ^s .72	0 ^s .07	14 ^s .3	23 ^s .65	0 ^s .02	42 ^s .0	34 ^s .98	0 ^s .07	62 ^s .0
Feb. 10	17 ^s .79	0 ^s .10	11 ^s .7	23 ^s .67	0 ^s .10	38 ^s .4	35 ^s .05	0 ^s .10	62 ^s .4
20	17 ^s .89	0 ^s .15	9 ^s .5	23 ^s .77	0 ^s .18	35 ^s .1	35 ^s .15	0 ^s .14	62 ^s .6
Mar. 1	18 ^s .04	0 ^s .18	7 ^s .5	23 ^s .95	0 ^s .26	32 ^s .1	35 ^s .29	0 ^s .16	62 ^s .4
11	18 ^s .22	0 ^s .21	5 ^s .9	24 ^s .21	0 ^s .33	29 ^s .4	35 ^s .45	0 ^s .19	62 ^s .4
21	18 ^s .43	0 ^s .25	4 ^s .7	24 ^s .54	0 ^s .39	27 ^s .1	35 ^s .64	0 ^s .21	62 ^s .0
31	18 ^s .68	0 ^s .27	3 ^s .9	24 ^s .93	0 ^s .44	25 ^s .3	35 ^s .85	0 ^s .24	61 ^s .3
Apr. 10	18 ^s .95	0 ^s .29	3 ^s .7	25 ^s .37	0 ^s .48	24 ^s .1	36 ^s .09	0 ^s .27	60 ^s .4
20	19 ^s .24	0 ^s .32	3 ^s .9	25 ^s .85	0 ^s .51	23 ^s .6	36 ^s .36	0 ^s .29	59 ^s .2
30	19 ^s .56	0 ^s .32	4 ^s .7	26 ^s .36	0 ^s .51	23 ^s .6	36 ^s .65	0 ^s .29	57 ^s .9
May 10	19 ^s .88	0 ^s .32	5 ^s .9	26 ^s .87	0 ^s .51	24 ^s .3	36 ^s .94	0 ^s .30	56 ^s .4
20	20 ^s .20	0 ^s .31	7 ^s .5	27 ^s .38	0 ^s .49	25 ^s .5	37 ^s .24	0 ^s .31	54 ^s .8
30	20 ^s .51	0 ^s .30	9 ^s .5	27 ^s .87	0 ^s .46	27 ^s .3	37 ^s .55	0 ^s .29	53 ^s .1
June 9	20 ^s .81	0 ^s .28	11 ^s .9	28 ^s .33	0 ^s .41	29 ^s .6	37 ^s .84	0 ^s .28	51 ^s .4
19	21 ^s .09	0 ^s .24	14 ^s .5	28 ^s .74	0 ^s .35	32 ^s .3	38 ^s .12	0 ^s .26	49 ^s .7
29	21 ^s .33	0 ^s .20	17 ^s .2	29 ^s .09	0 ^s .29	35 ^s .3	38 ^s .38	0 ^s .23	48 ^s .1
July 9	21 ^s .53	0 ^s .16	20 ^s .0	29 ^s .38	0 ^s .21	38 ^s .6	38 ^s .61	0 ^s .19	46 ^s .7
19	21 ^s .69	0 ^s .12	22 ^s .9	29 ^s .59	0 ^s .13	42 ^s .1	38 ^s .80	0 ^s .15	45 ^s .4
29	21 ^s .81	0 ^s .07	25 ^s .7	29 ^s .72	0 ^s .05	45 ^s .6	38 ^s .95	0 ^s .11	44 ^s .3
Aug. 8	21 ^s .88	0 ^s .02	28 ^s .4	29 ^s .77	0 ^s .03	49 ^s .2	39 ^s .06	0 ^s .06	43 ^s .3
18	21 ^s .90	0 ^s .02	30 ^s .9	29 ^s .74	0 ^s .11	52 ^s .7	39 ^s .12	0 ^s .02	42 ^s .6
28	21 ^s .88	0 ^s .07	33 ^s .2	29 ^s .63	0 ^s .18	56 ^s .1	39 ^s .14	0 ^s .02	42 ^s .1
Sept. 7	21 ^s .81	0 ^s .11	35 ^s .3	29 ^s .45	0 ^s .25	59 ^s .2	39 ^s .12	0 ^s .06	41 ^s .9
17	21 ^s .70	0 ^s .15	37 ^s .1	29 ^s .20	0 ^s .30	62 ^s .1	39 ^s .06	0 ^s .10	41 ^s .8
27	21 ^s .55	0 ^s .17	38 ^s .5	28 ^s .90	0 ^s .36	64 ^s .6	38 ^s .96	0 ^s .12	41 ^s .9
Oct. 7	21 ^s .38	0 ^s .18	39 ^s .6	28 ^s .54	0 ^s .40	66 ^s .7	38 ^s .84	0 ^s .14	42 ^s .1
17	21 ^s .20	0 ^s .20	40 ^s .4	28 ^s .14	0 ^s .42	68 ^s .4	38 ^s .70	0 ^s .15	42 ^s .4
27	21 ^s .00	0 ^s .20	40 ^s .7	27 ^s .72	0 ^s .43	69 ^s .6	38 ^s .55	0 ^s .15	42 ^s .9
Nov. 6	20 ^s .80	0 ^s .19	40 ^s .6	27 ^s .29	0 ^s .44	70 ^s .2	38 ^s .40	0 ^s .15	43 ^s .4
16	20 ^s .61	0 ^s .18	40 ^s .2	26 ^s .85	0 ^s .42	70 ^s .2	38 ^s .25	0 ^s .13	44 ^s .0
26	20 ^s .43	0 ^s .15	39 ^s .3	26 ^s .43	0 ^s .39	69 ^s .7	38 ^s .12	0 ^s .12	44 ^s .7
Dec. 6	20 ^s .28	0 ^s .13	38 ^s .0	26 ^s .04	0 ^s .36	68 ^s .6	38 ^s .00	0 ^s .09	45 ^s .4
16	20 ^s .15	0 ^s .10	36 ^s .4	25 ^s .68	0 ^s .32	67 ^s .0	37 ^s .91	0 ^s .06	46 ^s .1
26	20 ^s .05	0 ^s .07	34 ^s .5	25 ^s .36	0 ^s .25	64 ^s .9	37 ^s .85	0 ^s .04	46 ^s .8
36	19 ^s .98	0 ^s .07	32 ^s .3	25 ^s .11	0 ^s .25	62 ^s .3	37 ^s .81	0 ^s .04	47 ^s .5

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	β Cephei.		ϵ Pegasi.		16 Pegasi.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 21 ^m 26	[°] 69 ['] 58	^h 21 ^m 37	[°] 9 ['] 16	^h 21 ^m 47	[°] 25 ['] 18
Jan. 1	55° 05' 0.36	68° 9' 2.6	40° 90' 0.04	20° 2' 1.3	2° 31' 0.08	26° 1' 1.9
11	54° 49' 0.27	66° 3' 3.0	40° 86' 0.03	18° 9' 1.4	2° 23' 0.04	24° 2' 2.0
21	54° 42' 0.17	63° 3' 3.2	40° 84' 0.03	17° 5' 1.4	2° 19' 0.01	22° 2' 2.1
31	54° 25' 0.05	60° 1' 3.7	40° 86' 0.04	16° 1' 1.2	2° 18' 0.02	20° 1' 2.1
Feb. 10	54° 20' 0.08	56° 4' 3.3	{40° 90'} 0.08	{14° 8'} 1.2	2° 20' 0.07	18° 0' 2.2
20	54° 28' 0.19	53° 1' 3.2	40° 98' 0.12	13° 6' 0.9	2° 27' 0.10	15° 8' 1.8
Mar. 1	54° 47' 0.30	49° 9' 2.9	41° 10' 0.14	12° 7' 0.6	2° 37' 0.13	14° 0' 1.5
11	54° 77' 0.40	47° 0' 2.5	41° 24' 0.17	12° 1' 0.3	2° 50' 0.18	12° 5' 1.1
21	55° 17' 0.50	44° 5' 2.0	41° 41' 0.21	11° 8' 0.0	2° 68' 0.21	11° 4' 0.7
31	55° 67' 0.57	42° 5' 1.5	41° 62' 0.24	11° 8' 0.4	2° 89' 0.24	10° 7' 0.3
Apr. 10	56° 24' 0.62	41° 0' 0.9	41° 86' 0.25	12° 2' 0.7	3° 13' 0.27	10° 4' 0.2
20	56° 86' 0.66	40° 1' 0.3	42° 11' 0.28	12° 9' 1.0	3° 40' 0.29	10° 6' 0.6
30	57° 52' 0.68	39° 8' 0.4	42° 39' 0.29	13° 9' 1.4	3° 69' 0.31	11° 2' 1.1
May 10	58° 20' 0.67	40° 2' 1.0	42° 68' 0.30	15° 3' 1.6	4° 00' 0.31	12° 3' 1.4
20	58° 87' 0.64	41° 2' 1.5	42° 98' 0.31	16° 9' 1.8	4° 31' 0.32	13° 7' 1.8
30	59° 51' 0.60	42° 7' 2.1	43° 29' 0.29	18° 7' 2.0	4° 63' 0.31	15° 5' 2.1
June 9	60° 11' 0.54	44° 8' 2.5	43° 58' 0.28	20° 7' 2.1	4° 94' 0.29	17° 6' 2.4
19	60° 65' 0.46	47° 3' 2.9	43° 86' 0.26	22° 8' 2.2	5° 23' 0.27	20° 0' 2.6
29	61° 11' 0.38	50° 2' 3.2	44° 12' 0.23	25° 0' 2.1	5° 50' 0.24	22° 6' 2.6
July 9	61° 49' 0.28	53° 4' 3.4	44° 35' 0.19	27° 1' 2.1	5° 74' 0.20	25° 2' 2.7
19	61° 77' 0.18	56° 8' 3.6	44° 54' 0.16	29° 2' 1.9	5° 94' 0.16	27° 9' 2.6
29	61° 95' 0.07	60° 4' 3.7	44° 70' 0.11	31° 1' 1.8	6° 10' 0.12	30° 5' 2.6
Aug. 8	62° 02' 0.04	64° 1' 3.6	44° 81' 0.07	32° 9' 1.6	6° 22' 0.07	33° 1' 2.5
18	61° 98' 0.14	67° 7' 3.5	44° 88' 0.02	34° 5' 1.4	6° 29' 0.02	35° 6' 2.2
28	61° 84' 0.24	71° 2' 3.3	44° 90' 0.02	35° 9' 1.2	6° 31' 0.02	37° 8' 2.0
Sept. 7	61° 60' 0.34	74° 5' 3.1	44° 88' 0.05	37° 1' 0.9	6° 29' 0.06	39° 8' 1.8
17	61° 26' 0.42	77° 6' 2.8	44° 83' 0.09	38° 0' 0.7	6° 23' 0.10	41° 6' 1.5
27	60° 84' 0.48	80° 4' 2.4	44° 74' 0.12	38° 7' 0.5	6° 13' 0.13	43° 1' 1.2
Oct. 7	60° 36' 0.54	82° 8' 2.0	44° 62' 0.14	39° 2' 0.2	6° 00' 0.15	44° 3' 0.8
17	59° 82' 0.59	84° 8' 1.5	44° 48' 0.15	39° 4' 0.1	5° 85' 0.16	45° 1' 0.5
27	59° 23' 0.62	86° 3' 0.9	44° 33' 0.15	39° 3' 0.3	5° 69' 0.18	45° 6' 0.1
Nov. 6	58° 61' 0.63	87° 2' 0.4	44° 18' 0.15	39° 0' 0.5	5° 51' 0.17	45° 7' 0.2
16	57° 98' 0.61	87° 6' 0.2	44° 03' 0.14	38° 5' 0.7	5° 34' 0.17	45° 5' 0.6
26	57° 37' 0.58	87° 4' 0.8	43° 89' 0.13	37° 8' 0.9	5° 17' 0.15	44° 9' 0.9
Dec. 6	56° 79' 0.54	86° 6' 1.4	43° 76' 0.10	36° 9' 1.1	5° 02' 0.14	44° 0' 1.3
16	56° 25' 0.49	85° 2' 1.9	43° 66' 0.08	35° 8' 1.2	4° 88' 0.11	42° 7' 1.5
26	55° 76' 0.42	83° 3' 2.5	43° 58' 0.06	34° 6' 1.3	4° 77' 0.09	41° 2' 1.8
36	55° 34' 0.42	80° 8' 2.5	43° 52' 0.06	33° 3' 1.3	4° 68' 0.09	39° 4' 1.8

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Aquarii.		α Gruis.		θ Aquarii.	
	R. A.	Dec. South.	R. A.	Dec. South.	R. A.	Dec. South.
	^h 21 ^m 58	[°] 0 57	^h 21 ^m 59	[°] 47 35	^h 22 ^m 9	[°] 8 26
Jan. 1	58° 86' 0.06	35° 7' 0.8	51° 79' 0.09	64° 5' 0.09	50° 66' 0.06	23° 7' 0.5
11	58° 80' 0.02	36° 5' 0.9	51° 70' 0.05	63° 1' 1.4	50° 60' 0.03	24° 2' 0.4
21	58° 78' 0.00	37° 4' 0.7	51° 65' 0.01	61° 5' 1.9	50° 57' 0.01	24° 6' 0.3
31	58° 78' 0.03	38° 1' 0.7	51° 64' 0.04	59° 6' 2.2	50° 56' 0.03	24° 9' 0.2
Feb. 10	58° 81' 0.06	38° 8' 0.5	51° 68' 0.09	57° 4' 2.5	50° 59' 0.05	25° 1' 0.0
20	58° 87' 0.10	39° 3' 0.3	51° 77' 0.14	54° 9' 2.4	50° 64' 0.08	25° 1' 0.2
Mar. 1	58° 97' 0.12	39° 6' 0.0	51° 91' 0.18	52° 5' 2.5	50° 72' 0.12	24° 9' 0.5
11	59° 09' 0.16	39° 6' 0.3	52° 09' 0.22	50° 0' 2.5	50° 84' 0.16	24° 4' 0.6
21	59° 25' 0.19	39° 3' 0.5	52° 31' 0.27	47° 5' 2.5	51° 00' 0.19	23° 8' 0.9
31	59° 44' 0.22	38° 8' 0.7	52° 58' 0.30	45° 0' 2.5	51° 19' 0.21	22° 9' 1.1
Apr. 10	59° 66' 0.25	38° 1' 1.1	52° 88' 0.34	42° 6' 2.3	51° 40' 0.24	21° 8' 1.3
20	59° 91' 0.27	37° 0' 1.3	53° 22' 0.38	40° 3' 2.1	51° 64' 0.27	20° 5' 1.5
30	60° 18' 0.28	35° 7' 1.5	53° 60' 0.40	38° 2' 1.8	51° 91' 0.29	19° 0' 1.7
May 10	60° 46' 0.30	34° 2' 1.6	54° 00' 0.42	36° 4' 1.6	52° 20' 0.30	17° 3' 1.7
20	60° 76' 0.31	32° 6' 1.8	54° 42' 0.42	34° 8' 1.3	52° 50' 0.31	15° 6' 1.7
30	61° 07' 0.30	30° 8' 1.9	54° 84' 0.41	33° 5' 0.9	52° 81' 0.30	13° 9' 1.8
June 9	61° 37' 0.29	28° 9' 1.9	55° 25' 0.41	32° 6' 0.5	53° 11' 0.30	12° 1' 1.8
19	61° 66' 0.27	27° 0' 1.8	55° 66' 0.39	32° 1' 0.1	53° 41' 0.28	10° 3' 1.6
29	61° 93' 0.25	25° 2' 1.8	56° 05' 0.35	32° 0' 0.2	53° 69' 0.26	8° 7' 1.5
July 9	62° 18' 0.21	23° 4' 1.6	56° 40' 0.30	32° 2' 0.6	53° 95' 0.23	7° 2' 1.3
19	62° 39' 0.18	21° 8' 1.5	56° 70' 0.26	32° 8' 1.0	54° 18' 0.19	5° 9' 1.2
29	62° 57' 0.13	20° 3' 1.3	56° 96' 0.20	33° 8' 1.3	54° 37' 0.15	4° 7' 0.9
Aug. 8	62° 70' 0.10	19° 0' 1.0	57° 16' 0.14	35° 1' 1.6	54° 52' 0.11	3° 8' 0.6
18	62° 80' 0.05	17° 1' 0.9	57° 30' 0.07	36° 7' 1.8	54° 63' 0.07	3° 2' 0.4
28	62° 85' 0.00	16° 5' 0.6	57° 37' 0.00	38° 5' 1.9	54° 70' 0.02	2° 8' 0.2
Sept. 7	62° 85' 0.03	16° 1' 0.4	57° 37' 0.05	40° 4' 2.0	54° 72' 0.02	2° 6' 0.0
17	62° 82' 0.07	15° 9' 0.2	57° 32' 0.11	42° 4' 2.0	54° 70' 0.06	2° 6' 0.2
27	62° 75' 0.09	15° 8' 0.1	57° 21' 0.15	44° 4' 1.9	54° 64' 0.09	2° 8' 0.3
Oct. 7	62° 66' 0.12	15° 8' 0.2	57° 06' 0.19	46° 3' 1.7	54° 55' 0.11	3° 1' 0.5
17	62° 54' 0.13	16° 0' 0.3	56° 87' 0.22	48° 0' 1.4	54° 44' 0.13	3° 6' 0.6
27	62° 41' 0.15	16° 3' 0.5	56° 65' 0.24	49° 4' 1.1	54° 31' 0.14	4° 2' 0.6
Nov. 6	62° 26' 0.14	16° 8' 0.6	56° 41' 0.23	50° 5' 0.8	54° 17' 0.14	4° 8' 0.7
16	62° 12' 0.13	17° 4' 0.6	56° 18' 0.23	51° 3' 0.4	54° 03' 0.13	5° 5' 0.7
26	61° 99' 0.12	18° 0' 0.8	55° 95' 0.21	51° 7' 0.0	53° 90' 0.13	6° 2' 0.7
Dec. 6	61° 87' 0.11	18° 8' 0.8	55° 74' 0.19	51° 7' 0.5	53° 77' 0.11	6° 9' 0.7
16	61° 76' 0.09	19° 6' 0.9	55° 55' 0.15	51° 2' 0.8	53° 66' 0.09	7° 6' 0.6
26	61° 67' 0.06	20° 5' 0.8	55° 40' 0.11	50° 4' 1.2	53° 57' 0.07	8° 2' 0.5
36	61° 61' 0.06	21° 3' 0.8	55° 29' 0.11	49° 2' 1.2	53° 50' 0.07	8° 7' 0.5

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	η Aquarii.		ζ Pegasi.		α Piscis Australis. (Fomalhaut)	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. South.
	^h 22 ^m 28	[°] 0 ['] 47	^h 22 ^m 34	[°] 10 ['] 8	^h 22 ^m 50	[°] 30 ['] 18
Jan. 1	33 ^s 19 ^s 0 ^s 07	49 ^s 4 ^s 0 ^s 9	51 ^s 65 ^s 0 ^s 08	38 ^s 2 ^s 1 ^s 2	19 ^s 53 ^s 0 ^s 10	86 ^s 3 ^s 0 ^s 3
11	33 ^s 12 ^s 0 ^s 05	50 ^s 3 ^s 0 ^s 7	51 ^s 57 ^s 0 ^s 06	37 ^s 0 ^s 1 ^s 3	19 ^s 43 ^s 0 ^s 08	86 ^s 0 ^s 0 ^s 6
21	33 ^s 07 ^s 0 ^s 03	51 ^s 0 ^s 0 ^s 7	51 ^s 51 ^s 0 ^s 04	35 ^s 7 ^s 1 ^s 2	19 ^s 35 ^s 0 ^s 05	85 ^s 4 ^s 0 ^s 9
31	33 ^s 04 ^s 0 ^s 00	51 ^s 7 ^s 0 ^s 6	51 ^s 47 ^s 0 ^s 01	34 ^s 5 ^s 1 ^s 2	19 ^s 30 ^s 0 ^s 02	84 ^s 5 ^s 1 ^s 1
Feb. 10	33 ^s 04 ^s 0 ^s 03	52 ^s 3 ^s 0 ^s 5	51 ^s 46 ^s 0 ^s 02	33 ^s 3 ^s 1 ^s 1	19 ^s 28 ^s 0 ^s 01	83 ^s 4 ^s 1 ^s 4
20	33 ^s 07 ^s 0 ^s 07	52 ^s 8 ^s 0 ^s 2	51 ^s 48 ^s 0 ^s 05	32 ^s 2 ^s 0 ^s 9	19 ^s 29 ^s 0 ^s 05	82 ^s 0 ^s 1 ^s 7
Mar. 1	33 ^s 14 ^s 0 ^s 09	53 ^s 0 ^s 0 ^s 0	51 ^s 53 ^s 0 ^s 09	31 ^s 3 ^s 0 ^s 7	19 ^s 34 ^s 0 ^s 09	80 ^s 3 ^s 1 ^s 8
11	33 ^s 23 ^s 0 ^s 13	53 ^s 0 ^s 0 ^s 2	51 ^s 62 ^s 0 ^s 12	30 ^s 6 ^s 0 ^s 4	19 ^s 43 ^s 0 ^s 13	78 ^s 5 ^s 1 ^s 9
21	33 ^s 36 ^s 0 ^s 17	52 ^s 8 ^s 0 ^s 5	51 ^s 74 ^s 0 ^s 16	30 ^s 2 ^s 0 ^s 1	19 ^s 56 ^s 0 ^s 16	76 ^s 6 ^s 2 ^s 1
31	33 ^s 53 ^s 0 ^s 20	52 ^s 3 ^s 0 ^s 8	51 ^s 90 ^s 0 ^s 19	30 ^s 1 ^s 0 ^s 3	19 ^s 72 ^s 0 ^s 20	74 ^s 5 ^s 2 ^s 2
Apr. 10	33 ^s 73 ^s 0 ^s 22	51 ^s 5 ^s 1 ^s 0	52 ^s 09 ^s 0 ^s 23	30 ^s 4 ^s 0 ^s 6	19 ^s 92 ^s 0 ^s 24	72 ^s 3 ^s 2 ^s 2
20	33 ^s 95 ^s 0 ^s 26	50 ^s 5 ^s 1 ^s 3	52 ^s 32 ^s 0 ^s 25	31 ^s 0 ^s 0 ^s 9	20 ^s 16 ^s 0 ^s 27	70 ^s 1 ^s 2 ^s 2
30	34 ^s 21 ^s 0 ^s 28	49 ^s 2 ^s 1 ^s 5	52 ^s 57 ^s 0 ^s 28	31 ^s 9 ^s 1 ^s 3	20 ^s 43 ^s 0 ^s 30	67 ^s 9 ^s 2 ^s 2
May 10	34 ^s 49 ^s 0 ^s 29	47 ^s 7 ^s 1 ^s 7	52 ^s 85 ^s 0 ^s 30	33 ^s 2 ^s 1 ^s 5	20 ^s 73 ^s 0 ^s 32	65 ^s 7 ^s 2 ^s 1
20	34 ^s 78 ^s 0 ^s 30	46 ^s 0 ^s 1 ^s 8	53 ^s 15 ^s 0 ^s 30	34 ^s 7 ^s 1 ^s 7	21 ^s 05 ^s 0 ^s 34	63 ^s 6 ^s 2 ^s 0
30	35 ^s 08 ^s 0 ^s 31	44 ^s 2 ^s 1 ^s 9	53 ^s 45 ^s 0 ^s 31	36 ^s 4 ^s 1 ^s 9	21 ^s 39 ^s 0 ^s 35	61 ^s 6 ^s 1 ^s 7
June 9	35 ^s 39 ^s 0 ^s 30	42 ^s 3 ^s 2 ^s 0	53 ^s 76 ^s 0 ^s 30	38 ^s 3 ^s 2 ^s 1	21 ^s 74 ^s 0 ^s 34	59 ^s 9 ^s 1 ^s 4
19	35 ^s 69 ^s 0 ^s 29	40 ^s 3 ^s 1 ^s 9	54 ^s 06 ^s 0 ^s 29	40 ^s 4 ^s 2 ^s 2	22 ^s 08 ^s 0 ^s 34	58 ^s 5 ^s 1 ^s 1
29	35 ^s 98 ^s 0 ^s 26	38 ^s 4 ^s 1 ^s 8	54 ^s 35 ^s 0 ^s 26	42 ^s 6 ^s 2 ^s 1	22 ^s 42 ^s 0 ^s 32	57 ^s 4 ^s 0 ^s 9
July 9	36 ^s 24 ^s 0 ^s 24	36 ^s 6 ^s 1 ^s 7	54 ^s 61 ^s 0 ^s 24	44 ^s 7 ^s 2 ^s 1	22 ^s 74 ^s 0 ^s 28	56 ^s 5 ^s 0 ^s 5
19	36 ^s 48 ^s 0 ^s 20	34 ^s 9 ^s 1 ^s 6	54 ^s 85 ^s 0 ^s 20	46 ^s 8 ^s 2 ^s 1	23 ^s 02 ^s 0 ^s 25	56 ^s 0 ^s 0 ^s 2
29	36 ^s 68 ^s 0 ^s 16	33 ^s 3 ^s 1 ^s 3	55 ^s 05 ^s 0 ^s 17	48 ^s 9 ^s 1 ^s 9	23 ^s 27 ^s 0 ^s 21	55 ^s 8 ^s 0 ^s 1
Aug. 8	36 ^s 84 ^s 0 ^s 12	32 ^s 0 ^s 1 ^s 1	55 ^s 22 ^s 0 ^s 12	50 ^s 8 ^s 1 ^s 8	23 ^s 48 ^s 0 ^s 17	55 ^s 9 ^s 0 ^s 5
18	36 ^s 96 ^s 0 ^s 08	30 ^s 9 ^s 0 ^s 9	55 ^s 34 ^s 0 ^s 08	52 ^s 6 ^s 1 ^s 5	23 ^s 65 ^s 0 ^s 12	56 ^s 4 ^s 0 ^s 8
28	37 ^s 04 ^s 0 ^s 04	30 ^s 0 ^s 0 ^s 7	55 ^s 42 ^s 0 ^s 04	54 ^s 1 ^s 1 ^s 3	23 ^s 77 ^s 0 ^s 07	57 ^s 2 ^s 1 ^s 0
Sept. 7	37 ^s 08 ^s 0 ^s 01	29 ^s 3 ^s 0 ^s 5	55 ^s 46 ^s 0 ^s 00	55 ^s 4 ^s 1 ^s 1	23 ^s 84 ^s 0 ^s 02	58 ^s 2 ^s 1 ^s 3
17	37 ^s 07 ^s 0 ^s 04	28 ^s 8 ^s 0 ^s 2	55 ^s 46 ^s 0 ^s 04	56 ^s 5 ^s 0 ^s 9	23 ^s 86 ^s 0 ^s 02	59 ^s 5 ^s 1 ^s 4
27	37 ^s 03 ^s 0 ^s 07	28 ^s 6 ^s 0 ^s 0	55 ^s 42 ^s 0 ^s 07	57 ^s 4 ^s 0 ^s 6	23 ^s 84 ^s 0 ^s 07	60 ^s 9 ^s 1 ^s 5
Oct. 7	36 ^s 96 ^s 0 ^s 10	28 ^s 6 ^s 0 ^s 1	55 ^s 35 ^s 0 ^s 09	58 ^s 0 ^s 0 ^s 3	23 ^s 77 ^s 0 ^s 10	62 ^s 4 ^s 1 ^s 4
17	36 ^s 86 ^s 0 ^s 11	28 ^s 7 ^s 0 ^s 3	55 ^s 26 ^s 0 ^s 12	58 ^s 3 ^s 0 ^s 1	23 ^s 67 ^s 0 ^s 13	63 ^s 8 ^s 1 ^s 5
27	36 ^s 75 ^s 0 ^s 13	29 ^s 0 ^s 0 ^s 5	55 ^s 14 ^s 0 ^s 13	58 ^s 4 ^s 0 ^s 0	23 ^s 54 ^s 0 ^s 14	65 ^s 3 ^s 1 ^s 3
Nov. 6	36 ^s 62 ^s 0 ^s 13	29 ^s 5 ^s 0 ^s 6	55 ^s 01 ^s 0 ^s 13	58 ^s 4 ^s 0 ^s 3	23 ^s 40 ^s 0 ^s 16	66 ^s 6 ^s 1 ^s 1
16	36 ^s 49 ^s 0 ^s 14	30 ^s 1 ^s 0 ^s 6	54 ^s 88 ^s 0 ^s 14	58 ^s 1 ^s 0 ^s 5	23 ^s 24 ^s 0 ^s 16	67 ^s 7 ^s 0 ^s 9
26	36 ^s 35 ^s 0 ^s 12	30 ^s 7 ^s 0 ^s 7	54 ^s 74 ^s 0 ^s 13	57 ^s 6 ^s 0 ^s 7	23 ^s 08 ^s 0 ^s 15	68 ^s 6 ^s 0 ^s 7
Dec. 6	36 ^s 23 ^s 0 ^s 12	31 ^s 4 ^s 0 ^s 8	54 ^s 61 ^s 0 ^s 12	56 ^s 9 ^s 0 ^s 9	22 ^s 93 ^s 0 ^s 15	69 ^s 3 ^s 0 ^s 4
16	36 ^s 11 ^s 0 ^s 10	32 ^s 2 ^s 0 ^s 9	54 ^s 49 ^s 0 ^s 11	56 ^s 0 ^s 1 ^s 0	22 ^s 78 ^s 0 ^s 13	69 ^s 7 ^s 0 ^s 1
26	36 ^s 01 ^s 0 ^s 08	33 ^s 1 ^s 0 ^s 8	54 ^s 38 ^s 0 ^s 09	55 ^s 0 ^s 1 ^s 2	22 ^s 65 ^s 0 ^s 11	69 ^s 8 ^s 0 ^s 3
36	35 ^s 93 ^s 0 ^s 08	33 ^s 9 ^s 0 ^s 9	54 ^s 29 ^s 0 ^s 09	53 ^s 8 ^s 1 ^s 2	22 ^s 54 ^s 0 ^s 11	69 ^s 6 ^s 0 ^s 3

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Pegasi (Markab)		γ Piscium.		κ Piscium.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 22	^m 58	^h 23	^m 10	^h 23	^m 20
	[°] 14	['] 29	[°] 2	['] 33	[°] 0	['] 31
Jan. 1	10 ^s 37 ^s	47 ^s 7 ^s	18 ^s 46 ^s	40 ^s 2 ^s	9 ^s 10 ^s	57 ^s 8 ^s
11	10 ^s 26 ^s 0 ^s 11	46 ^s 5 ^s 1 ^s 2	18 ^s 36 ^s 0 ^s 10	39 ^s 3 ^s 0 ^s 9	9 ^s 01 ^s 0 ^s 09	57 ^s 0 ^s 8 ^s
21	10 ^s 18 ^s 0 ^s 08	45 ^s 2 ^s 1 ^s 3	18 ^s 28 ^s 0 ^s 08	38 ^s 5 ^s 0 ^s 8	8 ^s 93 ^s 0 ^s 08	56 ^s 3 ^s 7 ^s
31	10 ^s 12 ^s 0 ^s 06	43 ^s 8 ^s 1 ^s 4	18 ^s 22 ^s 0 ^s 06	37 ^s 7 ^s 0 ^s 8	8 ^s 86 ^s 0 ^s 07	55 ^s 6 ^s 7 ^s
	0 ^s 04	1 ^s 3	0 ^s 04	0 ^s 7	0 ^s 05	0 ^s 6
Feb. 10	10 ^s 08 ^s 0 ^s 00	42 ^s 5 ^s 1 ^s 3	18 ^s 18 ^s 0 ^s 01	37 ^s 0 ^s 0 ^s 6	8 ^s 81 ^s 0 ^s 02	55 ^s 0 ^s 5 ^s
20	10 ^s 08 ^s 0 ^s 02	41 ^s 2 ^s 1 ^s 1	18 ^s 17 ^s 0 ^s 02	36 ^s 4 ^s 0 ^s 4	8 ^s 79 ^s 0 ^s 01	54 ^s 5 ^s 2 ^s
Mar. 1	10 ^s 10 ^s 0 ^s 02	40 ^s 1 ^s 0 ^s 9	18 ^s 19 ^s 0 ^s 06	36 ^s 0 ^s 2 ^s	8 ^s 80 ^s 0 ^s 05	54 ^s 3 ^s 0 ^s
11	10 ^s 17 ^s 0 ^s 07	39 ^s 2 ^s 0 ^s 7	18 ^s 25 ^s 0 ^s 09	35 ^s 8 ^s 0 ^s 1	8 ^s 85 ^s 0 ^s 07	54 ^s 3 ^s 2 ^s
	0 ^s 10	0 ^s 7	0 ^s 09	0 ^s 1	0 ^s 07	0 ^s 2
21	10 ^s 27 ^s 0 ^s 14	38 ^s 5 ^s 0 ^s 4	18 ^s 34 ^s 0 ^s 12	35 ^s 9 ^s 0 ^s 3	8 ^s 92 ^s 0 ^s 12	54 ^s 5 ^s 4 ^s
31	10 ^s 41 ^s 0 ^s 17	38 ^s 1 ^s 0 ^s 0	18 ^s 46 ^s 0 ^s 17	36 ^s 2 ^s 0 ^s 6	9 ^s 04 ^s 0 ^s 15	54 ^s 9 ^s 7 ^s
Apr. 10	10 ^s 58 ^s 0 ^s 21	38 ^s 1 ^s 0 ^s 4	18 ^s 63 ^s 0 ^s 20	36 ^s 8 ^s 0 ^s 9	9 ^s 19 ^s 0 ^s 19	55 ^s 6 ^s 1 ^s 0
20	10 ^s 79 ^s 0 ^s 25	38 ^s 5 ^s 0 ^s 7	18 ^s 83 ^s 0 ^s 23	37 ^s 7 ^s 1 ^s 2	9 ^s 38 ^s 0 ^s 22	56 ^s 6 ^s 1 ^s 2
	0 ^s 25	0 ^s 7	0 ^s 23	0 ^s 1	0 ^s 22	0 ^s 1
30	11 ^s 04 ^s 0 ^s 27	39 ^s 2 ^s 1 ^s 0	19 ^s 06 ^s 0 ^s 26	38 ^s 9 ^s 1 ^s 4	9 ^s 60 ^s 0 ^s 25	57 ^s 8 ^s 1 ^s 5
May 10	11 ^s 31 ^s 0 ^s 29	40 ^s 2 ^s 1 ^s 4	19 ^s 32 ^s 0 ^s 28	40 ^s 3 ^s 1 ^s 6	9 ^s 85 ^s 0 ^s 28	59 ^s 3 ^s 1 ^s 7
20	11 ^s 60 ^s 0 ^s 30	41 ^s 6 ^s 1 ^s 7	19 ^s 60 ^s 0 ^s 30	41 ^s 9 ^s 1 ^s 9	10 ^s 13 ^s 0 ^s 30	61 ^s 0 ^s 1 ^s 8
30	11 ^s 90 ^s 0 ^s 31	43 ^s 3 ^s 1 ^s 8	19 ^s 90 ^s 0 ^s 31	43 ^s 8 ^s 1 ^s 9	10 ^s 43 ^s 0 ^s 30	62 ^s 8 ^s 1 ^s 9
	0 ^s 31	1 ^s 8	0 ^s 31	1 ^s 9	0 ^s 30	1 ^s 9
June 9	12 ^s 21 ^s 0 ^s 31	45 ^s 1 ^s 2 ^s 0	20 ^s 21 ^s 0 ^s 30	45 ^s 7 ^s 2 ^s 0	10 ^s 73 ^s 0 ^s 31	64 ^s 7 ^s 2 ^s 0
19	12 ^s 52 ^s 0 ^s 30	47 ^s 1 ^s 2 ^s 2	20 ^s 51 ^s 0 ^s 30	47 ^s 7 ^s 2 ^s 0	11 ^s 04 ^s 0 ^s 31	66 ^s 7 ^s 2 ^s 0
29	12 ^s 82 ^s 0 ^s 28	49 ^s 3 ^s 2 ^s 3	20 ^s 81 ^s 0 ^s 29	49 ^s 7 ^s 1 ^s 9	11 ^s 34 ^s 0 ^s 30	68 ^s 7 ^s 2 ^s 0
July 9	13 ^s 10 ^s 0 ^s 26	51 ^s 6 ^s 2 ^s 2	21 ^s 10 ^s 0 ^s 26	51 ^s 6 ^s 1 ^s 9	11 ^s 63 ^s 0 ^s 29	70 ^s 7 ^s 2 ^s 0
	0 ^s 26	2 ^s 2	0 ^s 26	1 ^s 9	0 ^s 27	1 ^s 8
19	13 ^s 36 ^s 0 ^s 22	53 ^s 8 ^s 2 ^s 2	21 ^s 36 ^s 0 ^s 23	53 ^s 5 ^s 1 ^s 8	11 ^s 90 ^s 0 ^s 24	72 ^s 5 ^s 1 ^s 7
29	13 ^s 58 ^s 0 ^s 18	56 ^s 0 ^s 2 ^s 1	21 ^s 59 ^s 0 ^s 20	55 ^s 3 ^s 1 ^s 6	12 ^s 14 ^s 0 ^s 20	74 ^s 2 ^s 1 ^s 5
Aug. 8	13 ^s 76 ^s 0 ^s 15	58 ^s 1 ^s 2 ^s 0	21 ^s 79 ^s 0 ^s 16	56 ^s 9 ^s 1 ^s 3	12 ^s 34 ^s 0 ^s 17	75 ^s 7 ^s 1 ^s 2
18	13 ^s 91 ^s 0 ^s 10	60 ^s 1 ^s 1 ^s 8	21 ^s 95 ^s 0 ^s 12	58 ^s 2 ^s 1 ^s 2	12 ^s 51 ^s 0 ^s 13	76 ^s 9 ^s 1 ^s 1
	0 ^s 10	1 ^s 8	0 ^s 12	1 ^s 2	0 ^s 13	1 ^s 1
28	14 ^s 01 ^s 0 ^s 06	61 ^s 9 ^s 1 ^s 6	22 ^s 07 ^s 0 ^s 07	59 ^s 4 ^s 0 ^s 9	12 ^s 64 ^s 0 ^s 08	78 ^s 0 ^s 8 ^s
Sept. 7	14 ^s 07 ^s 0 ^s 02	63 ^s 5 ^s 1 ^s 4	22 ^s 14 ^s 0 ^s 04	60 ^s 3 ^s 0 ^s 7	12 ^s 72 ^s 0 ^s 05	78 ^s 8 ^s 6 ^s
17	14 ^s 09 ^s 0 ^s 01	64 ^s 9 ^s 1 ^s 1	22 ^s 18 ^s 0 ^s 00	61 ^s 0 ^s 0 ^s 5	12 ^s 77 ^s 0 ^s 01	79 ^s 4 ^s 3 ^s
27	14 ^s 08 ^s 0 ^s 05	66 ^s 0 ^s 0 ^s 9	22 ^s 15 ^s 0 ^s 03	61 ^s 7 ^s 0 ^s 0	12 ^s 75 ^s 0 ^s 05	79 ^s 8 ^s 0 ^s 0
Oct. 7	14 ^s 03 ^s 0 ^s 08	67 ^s 6 ^s 0 ^s 7	22 ^s 09 ^s 0 ^s 09	61 ^s 7 ^s 0 ^s 1	12 ^s 70 ^s 0 ^s 08	79 ^s 8 ^s 3 ^s
17	13 ^s 95 ^s 0 ^s 12	67 ^s 9 ^s 0 ^s 1	22 ^s 00 ^s 0 ^s 10	61 ^s 6 ^s 0 ^s 3	12 ^s 62 ^s 0 ^s 10	79 ^s 5 ^s 4 ^s
Nov. 6	13 ^s 73 ^s 0 ^s 13	68 ^s 0 ^s 0 ^s 1	21 ^s 90 ^s 0 ^s 12	61 ^s 3 ^s 0 ^s 5	12 ^s 52 ^s 0 ^s 11	79 ^s 1 ^s 6 ^s
	0 ^s 13	0 ^s 1	0 ^s 12	0 ^s 5	0 ^s 11	0 ^s 6
16	13 ^s 60 ^s 0 ^s 13	67 ^s 9 ^s 0 ^s 3	21 ^s 78 ^s 0 ^s 12	60 ^s 8 ^s 0 ^s 6	12 ^s 41 ^s 0 ^s 12	78 ^s 5 ^s 6 ^s
26	13 ^s 47 ^s 0 ^s 14	67 ^s 6 ^s 0 ^s 6	21 ^s 66 ^s 0 ^s 12	60 ^s 2 ^s 0 ^s 7	12 ^s 29 ^s 0 ^s 12	77 ^s 9 ^s 7 ^s
Dec. 6	13 ^s 33 ^s 0 ^s 12	67 ^s 0 ^s 0 ^s 8	21 ^s 54 ^s 0 ^s 12	59 ^s 5 ^s 0 ^s 8	12 ^s 17 ^s 0 ^s 12	77 ^s 2 ^s 8 ^s
16	13 ^s 21 ^s 0 ^s 12	66 ^s 2 ^s 1 ^s 0	21 ^s 42 ^s 0 ^s 11	58 ^s 7 ^s 0 ^s 8	12 ^s 05 ^s 0 ^s 11	76 ^s 4 ^s 8 ^s
	0 ^s 12	1 ^s 0	0 ^s 11	0 ^s 8	0 ^s 11	0 ^s 8
26	13 ^s 09 ^s 0 ^s 11	65 ^s 2 ^s 1 ^s 1	21 ^s 31 ^s 0 ^s 10	57 ^s 9 ^s 0 ^s 8	11 ^s 94 ^s 0 ^s 10	75 ^s 6 ^s 8 ^s
36	12 ^s 98 ^s 0 ^s 11	64 ^s 1 ^s 1 ^s 1	21 ^s 21 ^s 0 ^s 10	57 ^s 1 ^s 0 ^s 8	11 ^s 84 ^s 0 ^s 10	74 ^s 8 ^s 8 ^s

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	♈ Piscium.		γ Cephei.	
	R. A.	Dec. North.	R. A.	Dec. North.
	^h 23	^o 4	^h 23	^o 76
Jan. 1	^m 33 ^s 9.00 ["] 0.11	54 ['] 38.4 ["] 0.9	^m 33 ^s 57.69 ["] 0.87	54 ['] 2.1 ["] 1.0
11	8.89 0.10	37.5 0.9	56.82 0.80	54 ['] 1.1 ["] 1.6
21	8.79 0.08	36.6 0.8	56.02 0.71	53 ['] 59.5 ["] 2.1
31	8.71 0.06	35.8 0.8	55.31 0.59	57.4 ["] 2.5
Feb. 10	8.65 0.03	35.0 0.7	54.72 0.45	54.9 ["] 2.9
20	8.62 0.01	34.3 0.5	54.27 0.28	52.0 ["] 3.1
Mar. 1	8.61 0.03	33.8 0.4	53.99 0.10	48.9 ["] 3.1
11	8.64 0.07	33.4 0.1	53.89 0.09	45.8 ["] 3.5
21	8.71 0.10	33.3 0.2	53.98 0.27	42.3 ["] 3.0
31	8.81 0.14	33.5 0.5	54.25 0.44	39.3 ["] 2.7
Apr. 10	8.95 0.18	34.0 0.8	54.69 0.60	36.6 ["] 2.3
20	9.13 0.22	34.8 1.0	55.29 0.74	34.3 ["] 1.8
30	9.35 0.25	35.8 1.3	56.03 0.84	32.5 ["] 1.3
May 10	9.60 0.27	37.1 1.5	56.87 0.92	31.2 ["] 0.8
20	9.87 0.29	38.6 1.7	57.79 0.98	30.4 ["] 0.1
30	10.16 0.30	40.3 1.9	58.77 1.00	30.3 ["] 0.4
June 9	10.46 0.31	42.2 2.0	33 59.77 0.99	30.7 ["] 0.9
19	10.77 0.31	44.2 2.0	34 0.76 0.96	31.6 ["] 1.5
29	11.08 0.29	46.2 2.1	1.72 0.90	33.1 ["] 2.0
July 9	11.37 0.27	48.3 1.9	2.62 0.82	35.1 ["] 2.5
19	11.64 0.25	50.2 1.8	3.44 0.71	37.6 ["] 2.9
29	11.89 0.22	52.0 1.7	4.15 0.60	40.5 ["] 3.2
Aug. 8	12.11 0.17	53.7 1.5	4.75 0.47	43.7 ["] 3.4
18	12.28 0.14	55.2 1.3	5.22 0.34	47.1 ["] 3.6
28	12.42 0.10	56.5 1.1	5.56 0.19	50.7 ["] 3.7
Sept. 7	12.52 0.06	57.6 0.8	5.75 0.05	54.4 ["] 3.7
17	12.58 0.02	58.4 0.6	5.80 0.10	53 58.1 ["] 3.7
27	12.60 0.01	59.0 0.4	5.70 0.23	54. 1.8 ["] 3.6
Oct. 7	12.59 0.04	59.4 0.1	5.47 0.37	5.4 ["] 3.3
17	12.55 0.07	59.5 0.0	5.10 0.49	8.7 ["] 3.1
27	12.48 0.09	59.5 0.2	4.61 0.61	11.8 ["] 2.7
Nov. 6	12.39 0.10	59.3 0.4	4.00 0.71	14.5 ["] 2.3
16	12.29 0.11	58.9 0.6	3.29 0.79	16.8 ["] 1.7
26	12.18 0.12	58.3 0.6	2.50 0.85	18.5 ["] 1.2
Dec. 6	12.06 0.12	57.7 0.7	1.65 0.90	19.7 ["] 0.6
16	11.94 0.12	57.0 0.8	34 0.75 0.91	20.3 ["] 0.0
26	11.82 0.11	56.2 0.9	33 59.84 0.89	20.3 ["] 0.7
36	33 11.71 0.11	54 55.3	33 58.95	54 19.6

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	δ Sculptoris.			ω Piscium.		
	R. A.	Dec. South.		R. A.	Dec. North.	
	^h 23	^o 28		^h 23	^o 6	
Jan. 1	^m 42 ^s 1' 65" 0.13	51' 47.7" 0.0		^m 52 ^s 31' 47" 0.12	7' 55.6" 0.9	
11	1' 52" 0.12	47.7" 0.3		31' 35" 0.11	54.7" 0.9	
21	1' 40" 0.10	47.4" 0.6		31' 24" 0.09	53.8" 0.8	
31	1' 30" 0.07	46.8" 0.9		31' 15" 0.07	53.0" 0.8	
Feb. 10	1' 23" 0.05	45.9" 1.2		31' 08" 0.06	52.2" 0.7	
20	1' 18" 0.01	44.7" 1.5		31' 02" 0.03	51.5" 0.6	
Mar. 1	1' 17" 0.02	43.2" 1.7		30' 99" 0.01	50.9" 0.4	
11	1' 19" 0.06	41.5" 2.2		31' 00" 0.05	50.5" 0.1	
21	1' 25" 0.10	39.3" 2.1		31' 05" 0.09	50.4" 0.1	
31	1' 35" 0.14	37.2" 2.3		31' 14" 0.12	50.5" 0.3	
Apr. 10	1' 49" 0.19	34.9" 2.4		31' 26" 0.16	50.8" 0.7	
20	1' 68" 0.22	32.5" 2.4		31' 42" 0.20	51.5" 1.0	
30	1' 90" 0.26	30.1" 2.4		31' 62" 0.24	52.5" 1.2	
May 10	2' 16" 0.29	27.7" 2.4		31' 86" 0.26	53.7" 1.5	
20	2' 45" 0.31	25.3" 2.3		32' 12" 0.29	55.2" 1.7	
30	2' 76" 0.33	23.0" 2.0		32' 41" 0.30	56.9" 1.8	
June 9	3' 09" 0.34	21.0" 1.8		32' 71" 0.31	7' 58.7" 2.0	
19	3' 43" 0.34	19.2" 1.7		33' 02" 0.31	8' 0.7" 2.0	
29	3' 77" 0.33	17.5" 1.3		33' 33" 0.29	2.7" 2.1	
July 9	4' 10" 0.31	16.2" 0.9		33' 62" 0.28	4.8" 2.0	
19	4' 41" 0.29	15.3" 0.6		33' 90" 0.26	6.8" 1.9	
29	4' 70" 0.25	14.7" 0.2		34' 16" 0.23	8.7" 1.7	
Aug. 8	4' 95" 0.21	14.5" 0.2		34' 39" 0.19	10.4" 1.6	
18	5' 16" 0.17	14.7" 0.5		34' 58" 0.16	12.0" 1.4	
28	5' 33" 0.12	15.2" 0.9		34' 74" 0.12	13.4" 1.1	
Sept. 7	5' 45" 0.08	16.1" 1.1		34' 86" 0.08	14.5" 0.9	
17	5' 53" 0.03	17.2" 1.4		34' 94" 0.04	15.4" 0.7	
27	5' 56" 0.01	18.6" 1.5		34' 98" 0.00	16.1" 0.5	
Oct. 7	5' 55" 0.05	20.1" 1.6		34' 98" 0.02	16.6" 0.2	
17	5' 50" 0.08	21.7" 1.6		34' 96" 0.05	16.8" 0.0	
27	5' 42" 0.11	23.3" 1.6		34' 91" 0.08	16.8" 0.1	
Nov. 6	5' 31" 0.12	24.9" 1.4		34' 83" 0.09	16.7" 0.3	
16	5' 19" 0.14	26.3" 1.3		34' 74" 0.10	16.4" 0.5	
26	5' 05" 0.15	27.6" 1.0		34' 64" 0.12	15.9" 0.6	
Dec. 6	4' 90" 0.15	28.6" 0.8		34' 52" 0.11	15.3" 0.7	
16	4' 75" 0.14	29.4" 0.4		34' 41" 0.12	14.6" 0.7	
26	4' 61" 0.14	29.8" 0.2		34' 29" 0.12	13.9" 0.8	
36	42 4' 47" 0.14	51 30.0" 0.2		52 34' 17" 0.12	8 13.1" 0.8	

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Cygni.		32 Vulpeculæ.		61 ^r Cygni.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 20 ^m 36	[°] 44 ['] 48	^h 20 ^m 48	[°] 27 ['] 33	^h 21 ^m 0	[°] 38 ['] 5
Jan. 1	54 ^s .34 ^s 0 ^s .05	47 ^s .2 ^s 2 ^s .8	54 ^s .66 ^s 0 ^s .03	34 ^s .3 ^s 2 ^s .3	57 ^s .26 ^s 0 ^s .06	77 ^s .2 ^s 2 ^s .5
11	54 ^s .29 ^s 0 ^s .01	44 ^s .4 ^s 3 ^s .1	54 ^s .63 ^s 0 ^s .01	32 ^s .0 ^s 2 ^s .4	57 ^s .20 ^s 0 ^s .01	74 ^s .7 ^s 2 ^s .5
21	54 ^s .28 ^s 0 ^s .04	41 ^s .3 ^s 3 ^s .3	54 ^s .64 ^s 0 ^s .05	29 ^s .6 ^s 2 ^s .6	57 ^s .19 ^s 0 ^s .03	72 ^s .2 ^s 2 ^s .7
31	54 ^s .32 ^s 0 ^s .10	38 ^s .0 ^s 3 ^s .0	54 ^s .69 ^s 0 ^s .09	27 ^s .0 ^s 2 ^s .4	57 ^s .22 ^s 0 ^s .08	69 ^s .5 ^s 2 ^s .9
Feb. 10	54 ^s .42 ^s 0 ^s .14	35 ^s .0 ^s 2 ^s .8	54 ^s .78 ^s 0 ^s .13	24 ^s .6 ^s 2 ^s .1	57 ^s .30 ^s 0 ^s .12	66 ^s .6 ^s 2 ^s .5
20	54 ^s .56 ^s 0 ^s .20	32 ^s .2 ^s 2 ^s .4	54 ^s .91 ^s 0 ^s .16	22 ^s .5 ^s 1 ^s .8	57 ^s .42 ^s 0 ^s .16	64 ^s .1 ^s 2 ^s .2
Mar. 1	54 ^s .76 ^s 0 ^s .24	29 ^s .8 ^s 2 ^s .1	55 ^s .07 ^s 0 ^s .19	20 ^s .7 ^s 1 ^s .5	57 ^s .58 ^s 0 ^s .21	61 ^s .9 ^s 1 ^s .8
11	55 ^s .00 ^s 0 ^s .27	27 ^s .7 ^s 1 ^s .6	55 ^s .26 ^s 0 ^s .23	19 ^s .2 ^s 1 ^s .0	57 ^s .79 ^s 0 ^s .25	60 ^s .1 ^s 1 ^s .4
21	55 ^s .27 ^s 0 ^s .31	26 ^s .1 ^s 1 ^s .0	55 ^s .49 ^s 0 ^s .26	18 ^s .2 ^s 0 ^s .6	58 ^s .04 ^s 0 ^s .27	58 ^s .7 ^s 0 ^s .9
31	55 ^s .58 ^s 0 ^s .34	25 ^s .1 ^s 0 ^s .4	55 ^s .75 ^s 0 ^s .27	17 ^s .6 ^s 0 ^s .1	58 ^s .31 ^s 0 ^s .31	57 ^s .8 ^s 0 ^s .4
Apr. 10	55 ^s .92 ^s 0 ^s .36	24 ^s .7 ^s 0 ^s .2	56 ^s .02 ^s 0 ^s .30	17 ^s .5 ^s 0 ^s .4	58 ^s .62 ^s 0 ^s .33	57 ^s .4 ^s 0 ^s .2
20	56 ^s .28 ^s 0 ^s .36	24 ^s .9 ^s 0 ^s .7	56 ^s .32 ^s 0 ^s .31	17 ^s .9 ^s 0 ^s .9	58 ^s .95 ^s 0 ^s .34	57 ^s .6 ^s 0 ^s .7
30	56 ^s .64 ^s 0 ^s .36	25 ^s .6 ^s 1 ^s .3	56 ^s .63 ^s 0 ^s .31	18 ^s .8 ^s 1 ^s .4	59 ^s .29 ^s 0 ^s .36	58 ^s .3 ^s 1 ^s .3
May 10	57 ^s .00 ^s 0 ^s .36	26 ^s .9 ^s 1 ^s .8	56 ^s .94 ^s 0 ^s .32	20 ^s .2 ^s 1 ^s .7	59 ^s .65 ^s 0 ^s .35	59 ^s .6 ^s 1 ^s .7
20	57 ^s .36 ^s 0 ^s .34	28 ^s .7 ^s 2 ^s .2	57 ^s .26 ^s 0 ^s .30	21 ^s .9 ^s 2 ^s .1	60 ^s .00 ^s 0 ^s .34	61 ^s .3 ^s 2 ^s .1
30	57 ^s .70 ^s 0 ^s .31	30 ^s .9 ^s 2 ^s .6	57 ^s .56 ^s 0 ^s .28	24 ^s .0 ^s 2 ^s .4	60 ^s .34 ^s 0 ^s .32	63 ^s .4 ^s 2 ^s .5
June 9	58 ^s .01 ^s 0 ^s .28	33 ^s .5 ^s 2 ^s .9	57 ^s .84 ^s 0 ^s .26	26 ^s .4 ^s 2 ^s .6	60 ^s .66 ^s 0 ^s .29	65 ^s .9 ^s 2 ^s .8
19	58 ^s .29 ^s 0 ^s .23	36 ^s .4 ^s 3 ^s .1	58 ^s .10 ^s 0 ^s .23	29 ^s .0 ^s 2 ^s .7	60 ^s .95 ^s 0 ^s .25	68 ^s .7 ^s 3 ^s .0
29	58 ^s .52 ^s 0 ^s .18	39 ^s .5 ^s 3 ^s .3	58 ^s .33 ^s 0 ^s .19	31 ^s .7 ^s 2 ^s .8	61 ^s .20 ^s 0 ^s .22	71 ^s .7 ^s 3 ^s .2
July 9	58 ^s .70 ^s 0 ^s .13	42 ^s .8 ^s 3 ^s .3	58 ^s .52 ^s 0 ^s .14	34 ^s .5 ^s 2 ^s .7	61 ^s .42 ^s 0 ^s .17	74 ^s .9 ^s 3 ^s .2
19	58 ^s .83 ^s 0 ^s .08	46 ^s .1 ^s 3 ^s .2	58 ^s .66 ^s 0 ^s .10	37 ^s .2 ^s 2 ^s .7	61 ^s .59 ^s 0 ^s .11	78 ^s .1 ^s 3 ^s .2
29	58 ^s .91 ^s 0 ^s .01	49 ^s .3 ^s 3 ^s .1	58 ^s .76 ^s 0 ^s .05	39 ^s .9 ^s 2 ^s .6	61 ^s .70 ^s 0 ^s .07	81 ^s .4 ^s 3 ^s .1
Aug. 8	58 ^s .92 ^s 0 ^s .04	52 ^s .4 ^s 3 ^s .0	58 ^s .81 ^s 0 ^s .00	42 ^s .5 ^s 2 ^s .4	61 ^s .77 ^s 0 ^s .01	84 ^s .3 ^s 2 ^s .9
18	58 ^s .88 ^s 0 ^s .10	55 ^s .4 ^s 2 ^s .8	58 ^s .81 ^s 0 ^s .04	44 ^s .9 ^s 2 ^s .2	61 ^s .78 ^s 0 ^s .04	87 ^s .3 ^s 2 ^s .7
28	58 ^s .78 ^s 0 ^s .14	58 ^s .2 ^s 2 ^s .4	58 ^s .77 ^s 0 ^s .09	47 ^s .1 ^s 1 ^s .9	61 ^s .74 ^s 0 ^s .08	90 ^s .0 ^s 2 ^s .5
Sept. 7	58 ^s .64 ^s 0 ^s .19	60 ^s .6 ^s 2 ^s .1	58 ^s .68 ^s 0 ^s .12	49 ^s .0 ^s 1 ^s .5	61 ^s .66 ^s 0 ^s .13	92 ^s .5 ^s 2 ^s .2
17	58 ^s .45 ^s 0 ^s .22	62 ^s .7 ^s 1 ^s .8	58 ^s .56 ^s 0 ^s .15	50 ^s .5 ^s 1 ^s .3	61 ^s .53 ^s 0 ^s .16	94 ^s .7 ^s 1 ^s .8
27	58 ^s .23 ^s 0 ^s .25	64 ^s .5 ^s 1 ^s .3	58 ^s .41 ^s 0 ^s .18	51 ^s .8 ^s 0 ^s .9	61 ^s .37 ^s 0 ^s .19	96 ^s .5 ^s 1 ^s .4
Oct. 7	57 ^s .98 ^s 0 ^s .27	65 ^s .8 ^s 0 ^s .8	58 ^s .23 ^s 0 ^s .19	52 ^s .7 ^s 0 ^s .6	61 ^s .18 ^s 0 ^s .21	97 ^s .9 ^s 1 ^s .0
17	57 ^s .71 ^s 0 ^s .27	66 ^s .6 ^s 0 ^s .3	58 ^s .04 ^s 0 ^s .20	53 ^s .3 ^s 0 ^s .1	60 ^s .97 ^s 0 ^s .22	98 ^s .9 ^s 0 ^s .6
27	57 ^s .44 ^s 0 ^s .27	66 ^s .9 ^s 0 ^s .2	57 ^s .84 ^s 0 ^s .19	53 ^s .4 ^s 0 ^s .3	60 ^s .75 ^s 0 ^s .22	99 ^s .5 ^s 0 ^s .1
Nov. 6	57 ^s .17 ^s 0 ^s .26	66 ^s .7 ^s 0 ^s .6	57 ^s .65 ^s 0 ^s .19	53 ^s .1 ^s 0 ^s .6	60 ^s .53 ^s 0 ^s .21	99 ^s .6 ^s 0 ^s .4
16	56 ^s .91 ^s 0 ^s .24	66 ^s .1 ^s 1 ^s .2	57 ^s .46 ^s 0 ^s .17	52 ^s .5 ^s 1 ^s .0	60 ^s .32 ^s 0 ^s .20	99 ^s .2 ^s 0 ^s .9
26	56 ^s .67 ^s 0 ^s .21	64 ^s .9 ^s 1 ^s .6	57 ^s .29 ^s 0 ^s .14	51 ^s .5 ^s 1 ^s .4	60 ^s .12 ^s 0 ^s .18	98 ^s .3 ^s 1 ^s .3
Dec. 6	56 ^s .46 ^s 0 ^s .17	63 ^s .3 ^s 2 ^s .1	57 ^s .15 ^s 0 ^s .12	50 ^s .1 ^s 1 ^s .8	59 ^s .94 ^s 0 ^s .15	97 ^s .0 ^s 1 ^s .6
16	56 ^s .29 ^s 0 ^s .13	61 ^s .2 ^s 2 ^s .4	57 ^s .03 ^s 0 ^s .08	48 ^s .3 ^s 2 ^s .0	59 ^s .79 ^s 0 ^s .11	95 ^s .4 ^s 2 ^s .1
26	56 ^s .16 ^s 0 ^s .08	58 ^s .8 ^s 2 ^s .8	56 ^s .95 ^s 0 ^s .05	46 ^s .3 ^s 2 ^s .2	59 ^s .68 ^s 0 ^s .07	93 ^s .3 ^s 2 ^s .4
36	56 ^s .08 ^s 0 ^s .08	56 ^s .0 ^s 2 ^s .8	56 ^s .90 ^s 0 ^s .05	44 ^s .1 ^s 2 ^s .2	59 ^s .61 ^s 0 ^s .07	90 ^s .9 ^s 2 ^s .4

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	ζ Cygni.		α Cephei.		β Aquarii.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. South.
	h m 21 7	° ' 29 41	h m 21 15	° ' 62 1	h m 21 24	° ' 6 8
Jan. 1	17.76 ^s 0.05	21.4 ^s 2.3	24.09 ^s 0.22	51.0 ^s 2.8	34.96 ^s 0.02	60.2 ^s 0.7
11	17.71 ^s 0.02	19.1 ^s 2.4	23.87 ^s 0.15	48.2 ^s 3.0	34.94 ^s 0.01	60.9 ^s 0.6
21	17.69 ^s 0.03	16.7 ^s 2.4	23.72 ^s 0.07	45.2 ^s 3.2	34.95 ^s 0.03	61.5 ^s 0.5
31	17.72 ^s 0.07	14.3 ^s 2.6	23.65 ^s 0.02	42.0 ^s 3.6	34.98 ^s 0.07	62.0 ^s 0.4
Feb. 10	17.79 ^s 0.10	11.7 ^s 2.2	23.67 ^s 0.10	38.4 ^s 3.3	35.05 ^s 0.10	62.4 ^s 0.2
20	17.89 ^s 0.15	9.5 ^s 2.0	23.77 ^s 0.18	35.1 ^s 3.0	35.15 ^s 0.14	62.6 ^s 0.0
Mar. 1	18.04 ^s 0.18	7.5 ^s 1.6	23.95 ^s 0.26	32.1 ^s 2.7	35.29 ^s 0.16	62.6 ^s 0.2
11	18.22 ^s 0.21	5.9 ^s 1.2	24.21 ^s 0.33	29.4 ^s 2.3	35.45 ^s 0.19	62.4 ^s 0.4
21	18.43 ^s 0.25	4.7 ^s 0.8	24.54 ^s 0.39	27.1 ^s 1.8	35.64 ^s 0.21	62.0 ^s 0.7
31	18.68 ^s 0.27	3.9 ^s 0.2	24.93 ^s 0.44	25.3 ^s 1.2	35.85 ^s 0.24	61.3 ^s 0.9
Apr. 10	18.95 ^s 0.29	3.7 ^s 0.2	25.37 ^s 0.48	24.1 ^s 0.5	36.09 ^s 0.27	60.4 ^s 1.2
20	19.24 ^s 0.32	3.9 ^s 0.8	25.85 ^s 0.51	23.6 ^s 0.0	36.36 ^s 0.29	59.2 ^s 1.3
30	19.56 ^s 0.32	4.7 ^s 1.2	26.36 ^s 0.51	23.6 ^s 0.7	36.65 ^s 0.29	57.9 ^s 1.5
May 10	19.88 ^s 0.32	5.9 ^s 1.6	26.87 ^s 0.51	24.3 ^s 1.2	36.94 ^s 0.30	56.4 ^s 1.6
20	20.20 ^s 0.31	7.5 ^s 2.0	27.38 ^s 0.49	25.5 ^s 1.8	37.24 ^s 0.31	54.8 ^s 1.7
30	20.51 ^s 0.30	9.5 ^s 2.4	27.87 ^s 0.46	27.3 ^s 2.3	37.55 ^s 0.29	53.1 ^s 1.7
June 9	20.81 ^s 0.28	11.9 ^s 2.6	28.33 ^s 0.41	29.6 ^s 2.7	37.84 ^s 0.28	51.4 ^s 1.7
19	21.09 ^s 0.24	14.5 ^s 2.7	28.74 ^s 0.35	32.3 ^s 3.0	38.12 ^s 0.26	49.7 ^s 1.6
29	21.33 ^s 0.20	17.2 ^s 2.8	29.09 ^s 0.29	35.3 ^s 3.3	38.38 ^s 0.23	48.1 ^s 1.4
July 9	21.53 ^s 0.16	20.0 ^s 2.9	29.38 ^s 0.21	38.6 ^s 3.5	38.61 ^s 0.19	46.7 ^s 1.3
19	21.69 ^s 0.12	22.9 ^s 2.8	29.59 ^s 0.13	42.1 ^s 3.5	38.80 ^s 0.15	45.4 ^s 1.1
29	21.81 ^s 0.07	25.7 ^s 2.7	29.72 ^s 0.05	45.6 ^s 3.6	38.95 ^s 0.11	44.3 ^s 1.0
Aug. 8	21.88 ^s 0.02	28.4 ^s 2.5	29.77 ^s 0.03	49.2 ^s 3.5	39.06 ^s 0.06	43.3 ^s 0.7
18	21.90 ^s 0.02	30.9 ^s 2.3	29.74 ^s 0.11	52.7 ^s 3.4	39.12 ^s 0.02	42.6 ^s 0.5
28	21.88 ^s 0.07	33.2 ^s 2.1	29.63 ^s 0.18	56.1 ^s 3.1	39.14 ^s 0.02	42.1 ^s 0.2
Sept. 7	21.81 ^s 0.11	35.3 ^s 1.8	29.45 ^s 0.25	59.2 ^s 2.9	39.12 ^s 0.06	41.9 ^s 0.1
17	21.70 ^s 0.15	37.1 ^s 1.4	29.20 ^s 0.30	62.1 ^s 2.5	39.06 ^s 0.10	41.8 ^s 0.1
27	21.55 ^s 0.17	38.5 ^s 1.1	28.90 ^s 0.36	64.6 ^s 2.1	38.96 ^s 0.12	41.9 ^s 0.2
Oct. 7	21.38 ^s 0.18	39.6 ^s 0.8	28.54 ^s 0.40	66.7 ^s 1.7	38.84 ^s 0.14	42.1 ^s 0.3
17	21.20 ^s 0.20	40.4 ^s 0.3	28.14 ^s 0.43	68.4 ^s 1.2	38.70 ^s 0.15	42.4 ^s 0.5
27	21.00 ^s 0.20	40.7 ^s 0.1	27.72 ^s 0.43	69.6 ^s 0.6	38.55 ^s 0.15	42.9 ^s 0.5
Nov. 6	20.80 ^s 0.19	40.6 ^s 0.4	27.29 ^s 0.44	70.2 ^s 0.0	38.40 ^s 0.15	43.4 ^s 0.6
16	20.61 ^s 0.18	40.2 ^s 0.9	26.85 ^s 0.42	70.2 ^s 0.5	38.25 ^s 0.13	44.0 ^s 0.7
26	20.43 ^s 0.15	39.3 ^s 1.3	26.43 ^s 0.39	69.7 ^s 1.1	38.12 ^s 0.12	44.7 ^s 0.7
Dec. 6	20.28 ^s 0.13	38.0 ^s 1.6	26.04 ^s 0.36	68.6 ^s 1.6	38.00 ^s 0.09	45.4 ^s 0.7
16	20.15 ^s 0.10	36.4 ^s 1.9	25.68 ^s 0.32	67.0 ^s 2.1	37.91 ^s 0.06	46.1 ^s 0.7
26	20.05 ^s 0.07	34.5 ^s 2.2	25.36 ^s 0.25	64.9 ^s 2.6	37.85 ^s 0.04	46.8 ^s 0.7
36	19.98 ^s	32.3 ^s	25.11 ^s	62.3 ^s	37.81 ^s	47.5 ^s

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	β Cephei.		ϵ Pegasi.		16 Pegasi.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 21 ^m 26	[°] 69 ['] 58	^h 21 ^m 37	[°] 9 ['] 16	^h 21 ^m 47	[°] 25 ['] 18
Jan. 1	55° 05' 0.36	68° 9' 2.6	40° 90' 0.04	20° 2' 1.3	2° 31' 0.08	26° 1' 1.9
11	54° 49' 0.27	66° 3' 3.0	40° 86' 0.02	18° 9' 1.4	2° 23' 0.04	24° 2' 2.0
21	54° 42' 0.17	63° 3' 3.2	40° 84' 0.02	17° 5' 1.4	2° 19' 0.01	22° 2' 2.1
31	54° 25' 0.05	60° 1' 3.7	40° 86' 0.04	16° 1' 1.2	2° 18' 0.02	20° 1' 2.1
Feb. 10	54° 20' 0.08	56° 4' 3.3	{40° 88'} {14° 1'}	13° 6' 0.9	2° 20' 0.07	18° 0' 2.2
20	54° 28' 0.19	53° 1' 3.2	40° 98' 0.12	13° 6' 0.9	2° 27' 0.10	15° 8' 1.8
Mar. 1	54° 47' 0.30	49° 9' 2.9	41° 10' 0.14	12° 7' 0.6	2° 37' 0.13	14° 0' 1.5
11	54° 77' 0.40	47° 0' 2.5	41° 24' 0.17	12° 1' 0.3	2° 50' 0.18	12° 5' 1.1
21	55° 17' 0.50	44° 5' 2.0	41° 41' 0.21	11° 8' 0.0	2° 68' 0.21	11° 4' 0.7
31	55° 67' 0.57	42° 5' 1.5	41° 62' 0.24	11° 8' 0.4	2° 89' 0.24	10° 7' 0.3
Apr. 10	56° 24' 0.62	41° 0' 0.9	41° 86' 0.25	12° 2' 0.7	3° 13' 0.27	10° 4' 0.2
20	56° 86' 0.66	40° 1' 0.3	42° 11' 0.28	12° 9' 1.0	3° 40' 0.29	10° 6' 0.6
30	57° 52' 0.68	39° 8' 0.4	42° 39' 0.29	13° 9' 1.4	3° 69' 0.31	11° 2' 1.1
May 10	58° 20' 0.67	40° 2' 1.0	42° 68' 0.30	15° 3' 1.6	4° 00' 0.31	12° 3' 1.4
20	58° 87' 0.64	41° 2' 1.5	42° 98' 0.31	16° 9' 1.8	4° 31' 0.32	13° 7' 1.8
30	59° 51' 0.60	42° 7' 2.1	43° 29' 0.29	18° 7' 2.0	4° 63' 0.31	15° 5' 2.1
June 9	60° 11' 0.54	44° 8' 2.5	43° 58' 0.28	20° 7' 2.1	4° 94' 0.29	17° 6' 2.4
19	60° 65' 0.46	47° 3' 2.9	43° 86' 0.26	22° 8' 2.2	5° 23' 0.27	20° 0' 2.6
29	61° 11' 0.38	50° 2' 3.2	44° 12' 0.23	25° 0' 2.1	5° 50' 0.24	22° 6' 2.6
July 9	61° 49' 0.28	53° 4' 3.4	44° 35' 0.19	27° 1' 2.1	5° 74' 0.20	25° 2' 2.7
19	61° 77' 0.18	56° 8' 3.6	44° 54' 0.16	29° 2' 1.9	5° 94' 0.16	27° 9' 2.6
29	61° 95' 0.07	60° 4' 3.7	44° 70' 0.11	31° 1' 1.8	6° 10' 0.12	30° 5' 2.6
Aug. 8	62° 02' 0.04	64° 1' 3.6	44° 81' 0.07	32° 9' 1.6	6° 22' 0.07	33° 1' 2.5
18	61° 98' 0.14	67° 7' 3.5	44° 88' 0.02	34° 5' 1.4	6° 29' 0.02	35° 6' 2.2
28	61° 84' 0.24	71° 2' 3.3	44° 90' 0.02	35° 9' 1.2	6° 31' 0.02	37° 8' 2.0
Sept. 7	61° 60' 0.34	74° 5' 3.1	44° 88' 0.05	37° 1' 0.9	6° 29' 0.06	39° 8' 1.8
17	61° 26' 0.42	77° 6' 2.8	44° 83' 0.09	38° 0' 0.7	6° 23' 0.10	41° 6' 1.5
27	60° 84' 0.48	80° 4' 2.4	44° 74' 0.12	38° 7' 0.5	6° 13' 0.13	43° 1' 1.2
Oct. 7	60° 36' 0.54	82° 8' 2.0	44° 62' 0.14	39° 2' 0.2	6° 00' 0.15	44° 3' 0.8
17	59° 82' 0.59	84° 8' 1.5	44° 48' 0.15	39° 4' 0.1	5° 85' 0.16	45° 1' 0.5
27	59° 23' 0.62	86° 3' 0.9	44° 33' 0.15	39° 3' 0.3	5° 69' 0.18	45° 6' 0.1
Nov. 6	58° 61' 0.63	87° 2' 0.4	44° 18' 0.15	39° 0' 0.5	5° 51' 0.17	45° 7' 0.2
16	57° 98' 0.61	87° 6' 0.2	44° 03' 0.14	38° 5' 0.7	5° 34' 0.17	45° 5' 0.6
26	57° 37' 0.58	87° 4' 0.8	43° 89' 0.13	37° 8' 0.9	5° 17' 0.15	44° 9' 0.9
Dec. 6	56° 79' 0.54	86° 6' 1.4	43° 76' 0.10	36° 9' 1.1	5° 02' 0.14	44° 0' 1.3
16	56° 25' 0.49	85° 2' 1.9	43° 66' 0.08	35° 8' 1.2	4° 88' 0.11	42° 7' 1.5
26	55° 76' 0.42	83° 3' 2.5	43° 58' 0.06	34° 6' 1.3	4° 77' 0.09	41° 2' 1.8
36	55° 34' 0.42	80° 8' 2.5	43° 52' 0.06	33° 3' 1.3	4° 68' 0.09	39° 4' 1.8

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Aquarii.		α Gruis.		θ Aquarii.	
	R. A.	Dec. South.	R. A.	Dec. South.	R. A.	Dec. South.
	^h 21 ^m 58	[°] 0 ['] 57	^h 21 ^m 59	[°] 47 ['] 35	^h 22 ^m 9	[°] 8 ['] 26
Jan. 1	58.86 ^s	35.7 ^s	51.79 ^s	64.5 ^s	50.66 ^s	23.7 ^s
11	58.80 ^s	36.5 ^s	51.70 ^s	63.1 ^s	50.60 ^s	24.2 ^s
21	58.78 ^s	37.4 ^s	51.65 ^s	61.5 ^s	50.57 ^s	24.6 ^s
31	58.78 ^s	38.1 ^s	51.64 ^s	59.6 ^s	50.56 ^s	24.9 ^s
	0.03	0.7	0.04	2.2	0.03	0.2
Feb. 10	58.81 ^s	38.8 ^s	51.68 ^s	57.4 ^s	50.59 ^s	25.1 ^s
20	58.87 ^s	39.3 ^s	51.77 ^s	54.9 ^s	50.64 ^s	25.1 ^s
Mar. 1	58.97 ^s	39.6 ^s	51.91 ^s	52.5 ^s	50.72 ^s	24.9 ^s
11	59.09 ^s	39.6 ^s	52.09 ^s	50.0 ^s	50.84 ^s	24.4 ^s
	0.16	0.3	0.22	2.5	0.16	0.6
21	59.25 ^s	39.3 ^s	52.31 ^s	47.5 ^s	51.00 ^s	23.8 ^s
31	59.44 ^s	38.8 ^s	52.58 ^s	45.0 ^s	51.19 ^s	22.9 ^s
Apr. 10	59.66 ^s	38.1 ^s	52.88 ^s	42.6 ^s	51.40 ^s	21.8 ^s
20	59.91 ^s	37.0 ^s	53.22 ^s	40.3 ^s	51.64 ^s	20.5 ^s
	0.27	1.3	0.38	2.1	0.27	1.5
May 30	60.18 ^s	35.7 ^s	53.60 ^s	38.2 ^s	51.91 ^s	19.0 ^s
10	60.46 ^s	34.2 ^s	54.00 ^s	36.4 ^s	52.20 ^s	17.3 ^s
20	60.76 ^s	32.6 ^s	54.42 ^s	34.8 ^s	52.50 ^s	15.6 ^s
30	61.07 ^s	30.8 ^s	54.84 ^s	33.5 ^s	52.81 ^s	13.9 ^s
	0.30	1.9	0.41	0.9	0.30	1.8
June 9	61.37 ^s	28.9 ^s	55.25 ^s	32.6 ^s	53.11 ^s	12.1 ^s
19	61.66 ^s	27.0 ^s	55.66 ^s	32.1 ^s	53.41 ^s	10.3 ^s
29	61.93 ^s	25.2 ^s	56.05 ^s	32.0 ^s	53.69 ^s	8.7 ^s
July 9	62.18 ^s	23.4 ^s	56.40 ^s	32.2 ^s	53.95 ^s	7.2 ^s
	0.21	1.6	0.30	0.6	0.23	1.3
19	62.39 ^s	21.8 ^s	56.70 ^s	32.8 ^s	54.18 ^s	5.9 ^s
29	62.57 ^s	20.3 ^s	56.96 ^s	33.8 ^s	54.37 ^s	4.7 ^s
Aug. 8	62.70 ^s	19.0 ^s	57.16 ^s	35.1 ^s	54.52 ^s	3.8 ^s
18	62.80 ^s	18.0 ^s	57.30 ^s	36.7 ^s	54.63 ^s	3.2 ^s
	0.05	0.9	0.07	1.8	0.07	0.4
28	62.85 ^s	17.1 ^s	57.37 ^s	38.5 ^s	54.70 ^s	2.8 ^s
Sept. 7	62.85 ^s	16.5 ^s	57.37 ^s	40.4 ^s	54.72 ^s	2.6 ^s
17	62.82 ^s	16.1 ^s	57.32 ^s	42.4 ^s	54.70 ^s	2.6 ^s
27	62.75 ^s	15.9 ^s	57.21 ^s	44.4 ^s	54.64 ^s	2.8 ^s
	0.09	0.1	0.15	1.9	0.09	0.3
Oct. 7	62.66 ^s	15.8 ^s	57.06 ^s	46.3 ^s	54.55 ^s	3.1 ^s
17	62.54 ^s	16.0 ^s	56.87 ^s	48.0 ^s	54.44 ^s	3.6 ^s
27	62.41 ^s	16.3 ^s	56.65 ^s	49.4 ^s	54.31 ^s	4.2 ^s
Nov. 6	62.26 ^s	16.8 ^s	56.41 ^s	50.5 ^s	54.17 ^s	4.8 ^s
	0.14	0.6	0.23	0.8	0.14	0.7
16	62.12 ^s	17.4 ^s	56.18 ^s	51.3 ^s	54.03 ^s	5.5 ^s
26	61.99 ^s	18.0 ^s	55.95 ^s	51.7 ^s	53.90 ^s	6.2 ^s
Dec. 6	61.87 ^s	18.8 ^s	55.74 ^s	51.7 ^s	53.77 ^s	6.9 ^s
16	61.76 ^s	19.6 ^s	55.55 ^s	51.2 ^s	53.66 ^s	7.6 ^s
	0.09	0.9	0.15	0.8	0.09	0.6
26	61.67 ^s	20.5 ^s	55.40 ^s	50.4 ^s	53.57 ^s	8.2 ^s
36	61.61 ^s	21.3 ^s	55.29 ^s	49.2 ^s	53.50 ^s	8.7 ^s

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	η Aquarii.		ζ Pegasi.		α Piscis Australis. (Fomalhaut)	
	R. A.	Dec. South.	R. A.	Dec. North.	R. A.	Dec. South.
	^h 22 ^m 28	[°] 0 47	^h 22 ^m 34	[°] 10 8	^h 22 ^m 50	[°] 30 18
Jan. 1	33° 19' 0.07	49° 4' 0.9	51° 65' 0.08	38° 2' 1.2	19° 53' 0.10	86° 3' 0.3
11	33° 12' 0.05	50° 3' 0.7	51° 57' 0.06	37° 0' 1.3	19° 43' 0.08	86° 0' 0.6
21	33° 07' 0.03	51° 0' 0.7	51° 51' 0.04	35° 7' 1.2	19° 35' 0.05	85° 4' 0.9
31	33° 04' 0.00	51° 7' 0.6	51° 47' 0.01	34° 5' 1.2	19° 30' 0.02	84° 5' 1.1
Feb. 10	33° 04' 0.03	52° 3' 0.5	51° 46' 0.02	33° 3' 1.1	19° 28' 0.01	83° 4' 1.4
20	33° 07' 0.07	52° 8' 0.2	51° 48' 0.05	32° 2' 0.9	19° 29' 0.05	82° 0' 1.7
Mar. 1	33° 14' 0.09	53° 0' 0.0	51° 53' 0.09	31° 3' 0.7	19° 34' 0.09	80° 3' 1.8
11	33° 23' 0.13	53° 0' 0.2	51° 62' 0.12	30° 6' 0.4	19° 43' 0.13	78° 5' 1.9
21	33° 36' 0.17	52° 8' 0.5	51° 74' 0.16	30° 2' 0.1	19° 56' 0.16	76° 6' 2.1
31	33° 53' 0.20	52° 3' 0.8	51° 90' 0.19	30° 1' 0.3	19° 72' 0.20	74° 5' 2.2
Apr. 10	33° 73' 0.22	51° 5' 1.0	52° 09' 0.23	30° 4' 0.6	19° 92' 0.24	72° 3' 2.2
20	33° 95' 0.26	50° 5' 1.3	52° 32' 0.25	31° 0' 0.9	20° 16' 0.27	70° 1' 2.2
30	34° 21' 0.28	49° 2' 1.5	52° 57' 0.28	31° 9' 1.3	20° 43' 0.30	67° 9' 2.2
May 10	34° 49' 0.29	47° 7' 1.7	52° 85' 0.30	33° 2' 1.5	20° 73' 0.32	65° 7' 2.1
20	34° 78' 0.30	46° 0' 1.8	53° 15' 0.30	34° 7' 1.7	21° 05' 0.34	63° 6' 2.0
30	35° 08' 0.31	44° 2' 1.9	53° 45' 0.31	36° 4' 1.9	21° 39' 0.35	61° 6' 1.7
June 9	35° 39' 0.30	42° 3' 2.0	53° 76' 0.30	38° 3' 2.1	21° 74' 0.34	59° 9' 1.4
19	35° 69' 0.29	40° 3' 1.9	54° 06' 0.29	40° 4' 2.2	22° 08' 0.34	58° 5' 1.1
29	35° 98' 0.26	38° 4' 1.8	54° 35' 0.26	42° 6' 2.1	22° 42' 0.32	57° 4' 0.9
July 9	36° 24' 0.24	36° 6' 1.7	54° 61' 0.24	44° 7' 2.1	22° 74' 0.28	56° 5' 0.5
19	36° 48' 0.20	34° 9' 1.6	54° 85' 0.20	46° 8' 2.1	23° 02' 0.25	56° 0' 0.2
29	36° 68' 0.16	33° 3' 1.3	55° 05' 0.17	48° 9' 1.9	23° 27' 0.21	55° 8' 0.1
Aug. 8	36° 84' 0.12	32° 0' 1.1	55° 22' 0.12	50° 8' 1.8	23° 48' 0.17	55° 9' 0.5
18	36° 96' 0.08	30° 9' 0.9	55° 34' 0.08	52° 6' 1.5	23° 65' 0.12	56° 4' 0.8
28	37° 04' 0.04	30° 0' 0.7	55° 42' 0.04	54° 1' 1.3	23° 77' 0.07	57° 2' 1.0
Sept. 7	37° 08' 0.01	29° 3' 0.5	55° 46' 0.00	55° 4' 1.1	23° 84' 0.02	58° 2' 1.3
17	37° 07' 0.04	28° 8' 0.2	55° 46' 0.04	56° 5' 0.9	23° 86' 0.02	59° 5' 1.4
27	37° 03' 0.07	28° 6' 0.0	55° 42' 0.07	57° 4' 0.6	23° 84' 0.07	60° 9' 1.5
Oct. 7	36° 96' 0.10	28° 6' 0.1	55° 35' 0.09	58° 0' 0.3	23° 77' 0.10	62° 4' 1.4
17	36° 86' 0.11	28° 7' 0.3	55° 26' 0.12	58° 3' 0.1	23° 67' 0.13	63° 8' 1.5
27	36° 75' 0.13	29° 0' 0.5	55° 14' 0.13	58° 4' 0.0	23° 54' 0.14	65° 3' 1.3
Nov. 6	36° 62' 0.13	29° 5' 0.6	55° 01' 0.13	58° 4' 0.3	23° 40' 0.16	66° 6' 1.1
16	36° 49' 0.14	30° 1' 0.6	54° 88' 0.14	58° 1' 0.5	23° 24' 0.16	67° 7' 0.9
26	36° 35' 0.12	30° 7' 0.7	54° 74' 0.12	57° 6' 0.7	23° 08' 0.15	68° 6' 0.7
Dec. 6	36° 23' 0.12	31° 4' 0.8	54° 61' 0.12	56° 9' 0.9	22° 93' 0.15	69° 3' 0.4
16	36° 11' 0.10	32° 2' 0.9	54° 49' 0.11	56° 0' 1.0	22° 78' 0.13	69° 7' 0.1
26	36° 01' 0.08	33° 1' 0.8	54° 38' 0.09	55° 0' 1.2	22° 65' 0.11	69° 8' 0.2
36	35° 93' 0.08	33° 9' 0.8	54° 29' 0.09	53° 8' 1.2	22° 54' 0.11	69° 6' 0.2

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	α Pegasi (Markab)		γ Piscium.		κ Piscium.	
	R. A.	Dec. North.	R. A.	Dec. North.	R. A.	Dec. North.
	^h 22	^m 58	^h 23	^m 10	^h 23	^m 20
	[°] 14	['] 29	[°] 2	['] 33	[°] 0	['] 31
Jan. 1	10° 37' 0" 11	47° 7' 1" 2	18° 46' 0" 10	40° 2' 0" 9	9° 10' 0" 09	57° 8' 0" 8
11	10° 26' 0" 08	46° 5' 1" 3	18° 36' 0" 08	39° 3' 0" 8	9° 01' 0" 08	57° 0' 0" 7
21	10° 18' 0" 06	45° 2' 1" 4	18° 28' 0" 06	38° 5' 0" 8	8° 93' 0" 07	56° 3' 0" 7
31	10° 12' 0" 04	43° 8' 1" 3	18° 22' 0" 04	37° 7' 0" 7	8° 86' 0" 05	55° 6' 0" 6
Feb. 10	10° 08' 0" 00	42° 5' 1" 3	18° 18' 0" 01	37° 0' 0" 6	8° 81' 0" 02	55° 0' 0" 5
20	10° 08' 0" 02	41° 2' 1" 1	18° 17' 0" 02	36° 4' 0" 4	8° 79' 0" 01	54° 5' 0" 4
Mar. 1	10° 10' 0" 07	40° 1' 0" 9	18° 19' 0" 06	36° 0' 0" 2	8° 80' 0" 05	54° 3' 0" 0
11	10° 17' 0" 10	39° 2' 0" 7	18° 25' 0" 09	35° 8' 0" 1	8° 85' 0" 07	54° 3' 0" 2
21	10° 27' 0" 14	38° 5' 0" 4	18° 34' 0" 12	35° 9' 0" 3	8° 92' 0" 12	54° 5' 0" 4
31	10° 41' 0" 17	38° 1' 0" 0	18° 46' 0" 17	36° 2' 0" 6	9° 04' 0" 15	54° 9' 0" 7
Apr. 10	10° 58' 0" 21	38° 1' 0" 4	18° 63' 0" 20	36° 8' 0" 9	9° 19' 0" 19	55° 6' 1" 0
20	10° 79' 0" 25	38° 5' 0" 7	18° 83' 0" 23	37° 7' 1" 2	9° 38' 0" 22	56° 6' 1" 2
30	11° 04' 0" 27	39° 2' 1" 0	19° 06' 0" 26	38° 9' 1" 4	9° 60' 0" 25	57° 8' 1" 5
May 10	11° 31' 0" 29	40° 2' 1" 4	19° 32' 0" 28	40° 3' 1" 6	9° 85' 0" 28	59° 3' 1" 7
20	11° 60' 0" 30	41° 6' 1" 7	19° 60' 0" 30	41° 9' 1" 9	10° 13' 0" 30	61° 0' 1" 8
30	11° 90' 0" 31	43° 3' 1" 8	19° 90' 0" 31	43° 8' 1" 9	10° 43' 0" 30	62° 8' 1" 9
June 9	12° 21' 0" 31	45° 1' 2" 0	20° 21' 0" 30	45° 7' 2" 0	10° 73' 0" 31	64° 7' 2" 0
19	12° 52' 0" 30	47° 1' 2" 0	20° 51' 0" 30	47° 7' 2" 0	11° 04' 0" 30	66° 7' 2" 0
29	12° 82' 0" 28	49° 3' 2" 3	20° 81' 0" 29	49° 7' 1" 9	11° 34' 0" 29	68° 7' 2" 0
July 9	13° 10' 0" 26	51° 6' 2" 2	21° 10' 0" 26	51° 6' 1" 9	11° 63' 0" 27	70° 7' 1" 8
19	13° 36' 0" 22	53° 8' 2" 2	21° 36' 0" 23	53° 5' 1" 8	11° 90' 0" 24	72° 5' 1" 7
29	13° 58' 0" 18	56° 0' 2" 1	21° 59' 0" 20	55° 3' 1" 6	12° 14' 0" 20	74° 2' 1" 5
Aug. 8	13° 76' 0" 15	58° 1' 2" 0	21° 79' 0" 16	56° 9' 1" 3	12° 34' 0" 17	75° 7' 1" 2
18	13° 91' 0" 10	60° 1' 1" 8	21° 95' 0" 12	58° 2' 1" 2	12° 51' 0" 13	76° 9' 1" 1
28	14° 01' 0" 06	61° 9' 1" 6	22° 07' 0" 07	59° 4' 0" 9	12° 64' 0" 08	78° 0' 0" 8
Sept. 7	14° 07' 0" 02	63° 5' 1" 4	22° 14' 0" 04	60° 3' 0" 7	12° 72' 0" 05	78° 8' 0" 6
17	14° 09' 0" 01	64° 9' 1" 1	22° 18' 0" 00	61° 0' 0" 5	12° 77' 0" 01	79° 4' 0" 3
27	14° 08' 0" 05	66° 0' 0" 9	22° 18' 0" 03	61° 5' 0" 2	12° 78' 0" 03	79° 7' 0" 1
Oct. 7	14° 03' 0" 08	66° 9' 0" 7	22° 15' 0" 06	61° 7' 0" 0	12° 75' 0" 05	79° 8' 0" 0
17	13° 95' 0" 10	67° 6' 0" 3	22° 09' 0" 09	61° 7' 0" 1	12° 70' 0" 08	79° 8' 0" 3
27	13° 85' 0" 12	67° 9' 0" 1	22° 00' 0" 10	61° 6' 0" 3	12° 62' 0" 10	79° 5' 0" 4
Nov. 6	13° 73' 0" 13	68° 0' 0" 1	21° 90' 0" 12	61° 3' 0" 5	12° 52' 0" 11	79° 1' 0" 6
16	13° 60' 0" 13	67° 9' 0" 3	21° 78' 0" 12	60° 8' 0" 6	12° 41' 0" 12	78° 5' 0" 6
26	13° 47' 0" 14	67° 6' 0" 6	21° 66' 0" 12	60° 2' 0" 7	12° 29' 0" 12	77° 9' 0" 7
Dec. 6	13° 33' 0" 12	67° 0' 0" 8	21° 54' 0" 12	59° 5' 0" 8	12° 17' 0" 12	77° 2' 0" 8
16	13° 21' 0" 12	66° 2' 1" 0	21° 42' 0" 11	58° 7' 0" 8	12° 05' 0" 11	76° 4' 0" 8
26	13° 09' 0" 11	65° 2' 1" 1	21° 31' 0" 10	57° 9' 0" 8	11° 94' 0" 10	75° 6' 0" 8
36	12° 98' 0" 11	64° 1' 1" 1	21° 21' 0" 10	57° 1' 0" 8	11° 84' 0" 10	74° 8' 0" 8

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	♈ Piscium.		γ Cephei.	
	R. A.	Dec. North.	R. A.	Dec. North.
	^h 23	^o 4	^h 23	^o 76
Jan. 1	^m 33 ^s 0.00 ["] 0.11	54 38.4 0.9	^m 33 ^s 57.69 ["] 0.87	54 2.1 1.0
11	8.89 0.10	37.5 0.9	56.82 0.80	54 1.1 1.6
21	8.79 0.08	36.6 0.8	56.02 0.71	53 59.5 2.1
31	8.71 0.06	35.8 0.8	55.31 0.59	57.4 2.5
Feb. 10	8.65 0.03	35.0 0.7	54.72 0.45	54.9 2.9
20	8.62 0.01	34.3 0.5	54.27 0.28	52.0 3.1
Mar. 1	8.61 0.03	33.8 0.4	53.99 0.10	48.9 3.1
11	8.64 0.07	33.4 0.1	53.89 0.09	45.8 3.5
21	8.71 0.10	33.3 0.2	53.98 0.27	42.3 3.0
31	8.81 0.14	33.5 0.5	54.25 0.44	39.3 2.7
Apr. 10	8.95 0.18	34.0 0.8	54.69 0.60	36.6 2.3
20	9.13 0.22	34.8 1.0	55.29 0.74	34.3 1.8
30	9.35 0.25	35.8 1.3	56.03 0.84	32.5 1.3
May 10	9.60 0.27	37.1 1.5	56.87 0.92	31.2 0.8
20	9.87 0.29	38.6 1.7	57.79 0.98	30.4 0.1
30	10.16 0.30	40.3 1.9	58.77 1.00	30.3 0.4
June 9	10.46 0.31	42.2 2.0	33 59.77 0.99	30.7 0.9
19	10.77 0.31	44.2 2.0	34 0.76 0.96	31.6 1.5
29	11.08 0.29	46.2 2.1	1.72 0.90	33.1 2.0
July 9	11.37 0.27	48.3 1.9	2.62 0.82	35.1 2.5
19	11.64 0.25	50.2 1.8	3.44 0.71	37.6 2.9
29	11.89 0.22	52.0 1.7	4.15 0.60	40.5 3.2
Aug. 8	12.11 0.17	53.7 1.5	4.75 0.47	43.7 3.4
18	12.28 0.14	55.2 1.3	5.22 0.34	47.1 3.6
28	12.42 0.10	56.5 1.1	5.56 0.19	50.7 3.7
Sept. 7	12.52 0.06	57.6 0.8	5.75 0.05	54.4 3.7
17	12.58 0.02	58.4 0.6	5.80 0.10	53 58.1 3.7
27	12.60 0.01	59.0 0.4	5.70 0.23	54 1.8 3.6
Oct. 7	12.59 0.04	59.4 0.1	5.47 0.37	5.4 3.3
17	12.55 0.07	59.5 0.0	5.10 0.49	8.7 3.1
27	12.48 0.09	59.5 0.2	4.61 0.61	11.8 2.7
Nov. 6	12.39 0.10	59.3 0.4	4.00 0.71	14.5 2.3
16	12.29 0.11	58.9 0.6	3.29 0.79	16.8 1.7
26	12.18 0.12	58.3 0.6	2.50 0.85	18.5 1.2
Dec. 6	12.06 0.12	57.7 0.7	1.65 0.90	19.7 0.6
16	11.94 0.12	57.0 0.8	34 0.75 0.91	20.3 0.0
26	11.82 0.11	56.2 0.9	33 59.84 0.89	20.3 0.7
36	33 11.71 0.11	54 55.3	33 58.95	54 19.6

APPARENT PLACES, FOR THE UPPER TRANSIT AT GREENWICH.

Month and Day.	δ Sculptoris.			ω Piscium.		
	R. A.	Dec. South.		R. A.	Dec. North.	
	^h 23	^o 28		^h 23	^o 6	
Jan. 1	^m 42 ^s 1.65 ^s 0.13	['] 51 ["] 47.7 ["] 0.0		^m 52 ^s 31.47 ^s 0.12	['] 7 ["] 55.6 ["] 0.9	
11	1.52 0.13	47.7 0.3		31.35 0.11	54.7 0.9	
21	1.40 0.10	47.4 0.6		31.24 0.09	53.8 0.8	
31	1.30 0.07	46.8 0.9		31.15 0.07	53.0 0.8	
Feb. 10	1.23 0.05	45.9 1.2		31.08 0.06	52.2 0.7	
20	1.18 0.01	44.7 1.5		31.02 0.03	51.5 0.6	
Mar. 1	1.17 0.02	43.2 1.7		30.99 0.01	50.9 0.4	
11	1.19 0.06	41.5 2.2		31.00 0.05	50.5 0.1	
21	1.25 0.10	39.3 2.1		31.05 0.09	50.4 0.1	
31	1.35 0.14	37.2 2.3		31.14 0.12	50.5 0.3	
Apr. 10	1.49 0.19	34.9 2.4		31.26 0.16	50.8 0.7	
20	1.68 0.22	32.5 2.4		31.42 0.20	51.5 1.0	
May 30	1.90 0.26	30.1 2.4		31.62 0.24	52.5 1.2	
10	2.16 0.29	27.7 2.4		31.86 0.26	53.7 1.5	
20	2.45 0.31	25.3 2.3		32.12 0.29	55.2 1.7	
30	2.76 0.33	23.0 2.0		32.41 0.30	56.9 1.8	
June 9	3.09 0.34	21.0 1.8		32.71 0.31	58.7 2.0	
19	3.43 0.34	19.2 1.7		33.02 0.31	58.7 2.0	
29	3.77 0.33	17.5 1.3		33.33 0.29	58.7 2.0	
July 9	4.10 0.31	16.2 0.9		33.62 0.28	58.7 2.0	
19	4.41 0.29	15.3 0.6		33.90 0.26	58.7 2.0	
29	4.70 0.25	14.7 0.2		34.16 0.23	58.7 2.0	
Aug. 8	4.95 0.21	14.5 0.2		34.39 0.19	58.7 2.0	
18	5.16 0.17	14.7 0.5		34.58 0.16	58.7 2.0	
Sept. 28	5.33 0.12	15.2 0.9		34.74 0.12	58.7 2.0	
7	5.45 0.08	16.1 1.1		34.86 0.08	58.7 2.0	
17	5.53 0.03	17.2 1.4		34.94 0.04	58.7 2.0	
27	5.56 0.01	18.6 1.5		34.98 0.00	58.7 2.0	
Oct. 7	5.55 0.05	20.1 1.6		34.98 0.02	58.7 2.0	
17	5.50 0.08	21.7 1.6		34.96 0.05	58.7 2.0	
27	5.42 0.11	23.3 1.6		34.91 0.08	58.7 2.0	
Nov. 6	5.31 0.12	24.9 1.4		34.83 0.09	58.7 2.0	
16	5.19 0.14	26.3 1.3		34.74 0.10	58.7 2.0	
26	5.05 0.15	27.6 1.0		34.64 0.12	58.7 2.0	
Dec. 6	4.90 0.15	28.6 0.8		34.52 0.11	58.7 2.0	
16	4.75 0.14	29.4 0.4		34.41 0.12	58.7 2.0	
26	4.61 0.14	29.8 0.2		34.29 0.12	58.7 2.0	
36	4.47 0.14	30.0 0.2		34.17 0.12	58.7 2.0	

TABLE,

Showing the *Correction* to be applied to the *preceding* Apparent Places of Five Polar Stars, for the terms of Nutation involving 2 ♄.

Arg.		α Urs. Min.		51 Cephei.		σ Octantis.		δ Urs. Min.		λ Urs. Min.		Arg.	
⊖		R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	⊖	
0	0											0	0
0	180	−235	+03	+021	+09	+013	−09	−007	−09	−150	−08	90	270
1	181	237	02	017	09	003	09	004	09	142	08	91	271
2	182	239	02	012	09	019	09	001	09	134	08	92	272
3	183	242	01	008	09	033	09	+002	09	125	08	93	273
4	184	244	01	+004	09	047	09	005	09	116	08	94	274
5	185	245	01	−001	09	063	09	008	09	107	08	95	275
6	186	247	+01	006	09	078	08	010	09	097	08	96	276
7	187	248	00	010	09	093	08	013	09	088	08	97	277
8	188	248	00	014	09	108	08	015	09	078	08	98	278
9	189	248	00	018	09	123	08	018	09	069	08	99	279
10	190	248	00	022	09	137	08	021	09	060	09	100	280
11	191	248	−01	027	09	152	08	023	09	050	09	101	281
12	192	247	01	031	09	166	08	026	09	040	09	102	282
13	193	246	01	035	08	180	08	028	08	031	09	103	283
14	194	244	02	039	08	193	08	031	08	021	09	104	284
15	195	243	02	043	08	207	08	034	08	011	09	105	285
16	196	241	02	047	08	220	07	036	08	−002	09	106	286
17	197	239	02	051	08	233	07	038	08	+008	09	107	287
18	198	237	03	054	08	246	07	040	08	018	09	108	288
19	199	234	03	058	08	258	07	043	08	028	09	109	289
20	200	231	03	063	08	270	07	046	07	038	09	110	290
21	201	228	03	067	07	282	07	048	07	048	09	111	291
22	202	224	04	071	07	293	07	050	07	057	09	112	292
23	203	220	04	074	07	305	07	052	07	067	09	113	293
24	204	216	04	077	07	316	07	054	07	077	08	114	294
25	205	212	04	080	07	326	06	056	06	087	08	115	295
26	206	208	05	083	06	336	06	058	06	096	08	116	296
27	207	204	05	086	06	346	06	059	06	104	08	117	297
28	208	198	05	090	06	355	05	061	06	113	08	118	298
29	209	193	05	093	05	364	05	063	06	122	08	119	299
30	210	187	05	096	05	372	05	065	05	131	08	120	300
31	211	181	06	099	05	379	05	066	05	140	08	121	301
32	212	176	06	102	05	387	04	067	05	149	08	122	302
33	213	170	06	104	04	394	04	069	04	157	07	123	303
34	214	163	06	106	04	400	04	071	04	165	07	124	304
35	215	156	06	108	04	406	04	072	04	173	07	125	305
36	216	149	07	110	04	412	03	073	04	180	07	126	306
37	217	141	07	113	03	417	03	074	03	187	06	127	307
38	218	134	07	115	03	421	03	075	03	194	06	128	308
39	219	127	07	116	03	425	03	076	03	201	06	129	309
40	220	121	07	117	03	428	02	077	02	208	06	130	310
41	221	114	07	118	02	431	02	078	02	214	05	131	311
42	222	106	08	119	02	433	02	078	02	221	05	132	312
43	223	098	08	120	01	435	02	078	02	227	05	133	313
44	224	090	08	121	01	436	01	078	01	233	05	134	314
45	225	−081	−08	−122	+01	−437	−01	+078	−01	+238	−04	135	315

NOTE.—When the *Argument* is on the *right-hand* side of the Table, the sign of the correction must be changed.

TABLE,

Showing the *Correction* to be applied to the *preceding* Apparent Places of Five Polar Stars, for the terms of Nutation involving 2 ζ .

Arg.		α Urs. Min.		51 Cephei.		σ Octantis.		δ Urs. Min.		λ Urs. Min.		Arg.	
ζ		R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	R.A.	Dec.	ζ	
0	0	s	"	s	"	s	"	s	"	s	"	0	0
45	225	—'081	—'08	—'122	+ '01	—'437	—'01	+ '078	—'01	+ '238	—'04	135	315
46	226	'073	'08	'123	'00	'437	'00	'078	—'01	'243	'04	136	316
47	227	'064	'08	'124	'00	'437	'00	'079	'00	'248	'04	137	317
48	228	'056	'08	'124	'00	'436	'00	'079	'00	'252	'04	138	318
49	229	'048	'08	'124	—'01	'435	+ '01	'078	'00	'256	'04	139	319
50	230	'040	'08	'124	'01	'432	'01	'078	+ '01	'260	'03	140	320
51	231	'031	'08	'124	'01	'429	'01	'078	'01	'264	'03	141	321
52	232	'022	'08	'123	'02	'426	'02	'078	'01	'267	'03	142	322
53	233	'013	'08	'123	'02	'423	'02	'077	'02	'270	'02	143	323
54	234	—'004	'08	'123	'02	'420	'02	'077	'02	'272	'02	144	324
55	235	+ '004	'08	'122	'02	'415	'03	'076	'02	'275	'02	145	325
56	236	'012	'08	'122	'03	'410	'03	'075	'03	'277	'02	146	326
57	237	'021	'08	'121	'03	'405	'03	'074	'03	'278	'01	147	327
58	238	'030	'08	'119	'03	'399	'03	'073	'03	'279	'01	148	328
59	239	'039	'08	'117	'04	'392	'04	'072	'03	'280	—'01	149	329
60	240	'048	'08	'116	'04	'385	'04	'071	'04	'281	'00	150	330
61	241	'056	'08	'115	'04	'377	'04	'070	'04	'281	'00	151	331
62	242	'064	'08	'113	'04	'369	'04	'069	'04	'281	'00	152	332
63	243	'072	'08	'111	'05	'361	'05	'067	'05	'280	+ '01	153	333
64	244	'080	'08	'109	'05	'352	'05	'066	'05	'279	'01	154	334
65	245	'088	'08	'107	'05	'343	'05	'064	'05	'279	'01	155	335
66	246	'096	'07	'104	'06	'333	'05	'062	'05	'278	'02	156	336
67	247	'104	'07	'102	'06	'323	'05	'061	'06	'276	'02	157	337
68	248	'112	'07	'100	'06	'312	'06	'060	'06	'274	'02	158	338
69	249	'120	'07	'097	'06	'301	'06	'058	'06	'271	'02	159	339
70	250	'127	'07	'095	'06	'291	'06	'056	'06	'267	'03	160	340
71	251	'134	'07	'092	'07	'280	'06	'054	'06	'264	'03	161	341
72	252	'142	'07	'089	'07	'268	'07	'052	'07	'261	'03	162	342
73	253	'149	'06	'086	'07	'255	'07	'050	'07	'257	'04	163	343
74	254	'156	'06	'082	'07	'242	'07	'048	'07	'253	'04	164	344
75	255	'163	'06	'079	'07	'230	'07	'046	'07	'249	'04	165	345
76	256	'169	'06	'076	'08	'217	'07	'044	'08	'245	'04	166	346
77	257	'175	'06	'072	'08	'203	'08	'042	'08	'240	'05	167	347
78	258	'181	'05	'069	'08	'189	'08	'039	'08	'234	'05	168	348
79	259	'187	'05	'065	'08	'175	'08	'036	'08	'229	'05	169	349
80	260	'192	'05	'062	'08	'161	'08	'033	'08	'223	'06	170	350
81	261	'198	'05	'058	'08	'147	'08	'030	'08	'216	'06	171	351
82	262	'203	'04	'054	'08	'132	'08	'028	'08	'210	'06	172	352
83	263	'208	'04	'050	'09	'118	'08	'025	'08	'204	'06	173	353
84	264	'212	'04	'046	'09	'103	'08	'022	'09	'197	'06	174	354
85	265	'217	'04	'042	'09	'088	'08	'020	'09	'190	'07	175	355
86	266	'221	'03	'038	'09	'073	'09	'018	'09	'182	'07	176	356
87	267	'225	'03	'033	'09	'058	'09	'015	'09	'174	'07	177	357
88	268	'228	'03	'029	'09	'043	'09	'012	'09	'167	'07	178	358
89	269	'231	'03	'025	'09	'028	'09	'009	'09	'159	'07	179	359
90	270	+ '235	—'03	—'021	—'09	—'013	+ '09	+ '007	+ '09	+ '150	+ '08	180	360

NOTE.—When the *Argument* is on the *right-hand* side of the Table, the sign of the correction must be changed.

390 MOON-CULMINATING STARS, 1868.

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
Jan. 1	♈ Aquarii -	4½	h m s 23 7 28.21	"	"	S. 6° 46'	"	"
	96 Aquarii -	5½	23 12 32.33	"	"	5 51	"	"
	Moon I. U.	6.7	23 38 38.95	120.83	62.61	3 51 54.7	+604.1	
	Moon I. L.	- -	0 2 54.47	121.85	62.90	1 49 19.1	620.9	
	30 Piscium -	5	23 55 10.73			6 45		
	33 Piscium -	5	23 58 34.05			S. 6 27		
	2 30 Piscium -	5	23 55 10.72			S. 6 45		
	33 Piscium -	5	23 58 34.05			S. 6 27		
	Moon I. U.	7.7	0 27 25.35	123.39	63.32	N. 0 16	5.1	+632.1
	Moon I. L.	- -	0 52 18.05	125.49	63.88	2 23 6.9	6.9	637.1
	♄ Piscium *	4½	0 41 49.83			6 52		
	♅ Piscium *	4½	1 6 50.02			N. 6 53		
	3 ♄ Piscium *	4½	0 41 49.81			N. 6 52		
	♅ Piscium *	4½	1 6 50.01			6 53		
	Moon I. U.	8.8	1 17 39.27	128.15	64.57	4 30 26.6	+635.0	
	Moon I. L.	- -	1 43 35.77	131.37	65.39	6 36 34.9	624.9	
	♄ Piscium *	4½	1 34 33.75			4 49		
	♅ Piscium *	4	1 38 25.64			N. 8 30		
	4 ♄ Piscium *	4½	1 34 33.73			N. 4 49		
	♅ Piscium *	4	1 38 25.62			8 30		
	Moon I. U.	9.8	2 10 14.19	135.13	66.34	8 39 49.0	+605.8	
	Moon I. L.	- -	2 37 40.69	139.37	67.38	10 38 14.2	576.5	
	♄ Ceti - - *	4	2 21 8.80			7 52		
	♅ Ceti - - *	4	2 37 48.91			N. 9 33		
	5 ♄ Ceti - - *	4	2 21 8.79			N. 7 52		
	♅ Ceti - - *	4	2 37 48.90			9 33		
	• Moon I. U.	10.8	3 6 0.48	143.99	68.52	12 29 39.4	+535.7	
	Moon I. L.	- -	3 35 17.25	148.84	69.67	14 11 41.0	482.4	
	♄ Tauri - *	4	3 23 35.98			12 29		
	♅ Tauri - *	3½	3 53 22.86			N. 12 7		
	6 ♄ Tauri - *	4	3 23 35.97			N. 12 29		
	♅ Tauri - *	3½	3 53 22.85			12 7		
	Moon I. U.	11.9	4 5 32.59	153.70	70.82	15 41 44.2	+415.9	
	Moon I. L.	- -	4 36 45.18	158.33	71.88	16 57 10.3	336.2	
	♄ Tauri - -	3½	4 20 55.46			18 53		
	♅ Tauri - -	1	4 28 21.74			N. 16 14		
	7 ♄ Tauri - -	3½	4 20 55.46			N. 18 53		
	♅ Tauri - -	1	4 28 21.74			16 14		
	Moon I. U.	12.9	5 8 50.34	162.41	72.81	17 55 25.1	+244.2	
	Moon I. L.	- -	5 41 39.67	165.64	73.53	18 34 10.5	141.8	
	♅ Tauri - -	3½	5 29 46.51			21 4		
	♄ Orionis -	4½	6 0 3.13			N. 14 47		
	8 ♅ Tauri - -	3½	5 29 46.51			N. 21 4		
	♄ Orionis -	4½	6 0 3.14			14 47		
	Moon I. U.	14.0	6 15 1.33	167.76	74.00	18 51 39.2	+ 32.0	
	Moon I. L.	- -	6 48 40.74	168.58	74.16	18 46 45.6	- 81.2	
	♅ Geminor.	4	6 56 17.83			N. 20 46		

MOON-CULMINATING STARS, 1868. 391

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R. A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
			h m s	s	s	° ' "	"	
Jan. 8	λ Geminor.	3½	7 10 31.49			N.16 47		
9	ζ Geminor.	4	6 56 17.84			N.20 46		
	λ Geminor.	3½	7 10 31.50			16 47		
	Moon II.U.	15.0	7 24 49.94	168.00	74.03	18 19 15.4	-193.3	
	μ² Cancri - -	5	8 0 0.66			21 58		
	ζ Cancri - -	5½	8 4 39.39			N.18 3		
10	μ² Cancri - -	5	8 0 0.68			N.21 58		
	ζ Cancri - -	5½	8 4 39.41			18 3		
	Moon II. L.	- -	7 58 16.09	166.16	73.61	17 29 49.1	-299.8	
	Moon II. U.	16.1	8 31 13.50	163.25	72.96	16 19 57.7	396.8	
	α Cancri - *	4	8 51 16.86			12 22		
	83 Cancri - -	6	9 11 37.32			N.18 16		
11	α Cancri - *	4	8 51 16.87			N.12 22		
	83 Cancri - -	6	9 11 37.34			18 16		
	Moon II. L.	- -	9 3 31.01	159.56	72.12	14 51 54.2	-481.4	
	Moon II. U.	17.1	9 35 1.00	155.39	71.15	13 8 20.5	551.7	
	ν Leonis - *	5	9 51 7.87			13 4		
	α Leonis - *	1½	10 1 21.02			N.12 37		
12	ν Leonis - *	5	9 51 7.90			N.13 4		
	α Leonis - *	1½	10 1 21.04			12 37		
	Moon II. L.	- -	10 5 39.52	151.03	70.14	11 12 13.7	-606.9	
	Moon II. U.	18.1	10 35 25.82	146.72	69.12	9 6 34.0	647.3	
	χ Leonis - *	5	10 58 12.86			8 3		
	σ Leonis - *	4	11 14 20.16			N. 6 45		
13	χ Leonis - *	5	10 58 12.88			N. 8 3		
	σ Leonis - *	4	11 14 20.18			6 45		
	Moon II. L.	- -	11 4 21.80	142.67	68.15	6 54 15.4	-673.6	
	Moon II. U.	19.2	11 32 31.30	139.00	67.27	4 37 58.9	687.1	
	β Virginis -	3½	11 43 49.54			2 30		
	η Virginis -	3½	12 13 9.29			N. 0 4		
14	β Virginis -	3½	11 43 49.57			N. 2 30		
	η Virginis -	3½	12 13 9.32			0 4		
	Moon II. L.	- -	11 59 59.52	135.79	66.48	2 20 9.7	-689.3	
	Moon II. U.	20.2	12 26 52.35	133.10	65.82	N. 0 2 55.7	681.5	
	48 Virginis -	6	12 57 6.35			S. 2 56		
	θ Virginis -	4½	13 3 6.95			S. 4 50		
15	48 Virginis -	6	12 57 6.38			S. 2 56		
	θ Virginis -	4½	13 3 6.98			4 50		
	Moon II. L.	- -	12 53 16.00	130.93	65.27	2 11 51.6	-665.1	
	Moon II. U.	21.3	13 19 16.73	129.27	64.86	4 22 35.4	641.1	
	80 Virginis -	6	13 28 39.24			4 44		
	m Virginis -	6	13 34 41.02			S. 8 3		
16	80 Virginis -	6	13 28 39.28			S. 4 44		
	m Virginis -	6	13 34 41.06			8 3		
	Moon II. L.	- -	13 45 0.43	128.09	64.54	6 27 51.2	-610.6	
	Moon II. U.	22.3	14 10 32.64	127.35	64.34	S. 8 26 25.4	-574.2	

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. per. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
Jan. 16	α^1 Libræ - -	2½	h m s					
	ξ^1 Libræ - -	6	14 43 34·22 14 47 12·49				S. 15 29 11 22	
17	α^1 Libræ - -	2½	14 43 34·25				S. 15 29	
	ξ^1 Libræ - -	6	14 47 12·52				11 22	
	Moon II. L.	- -	14 35 58·26	126·98	64·23	10 17 12·2	-532·8	
	Moon II. U.	28·3	15 1 21·48	126·93	64·21	11 59 13·2	486·7	
	ζ^1 Libræ - -	4	15 20 48·32			16 15		
	γ Libræ - -	4½	15 28 7·95			S. 14 21		
18	ζ^1 Libræ - -	4	15 20 48·36			S. 16 15		
	γ Libræ - -	4½	15 28 7·99			14 21		
	Moon II. L.	- -	15 26 45·68	127·14	64·23	13 31 35·0	-436·3	
	Moon II. U.	24·3	15 52 13·43	127·51	64·30	14 53 29·0	382·1	
	ν Scorpil - -	4	16 4 18·75			19 7		
	ϕ Ophiuchi -	5	16 23 34·33			S. 16 19		
19	ν Scorpil - -	4	16 4 18·78			S. 19 7		
	ϕ Ophiuchi -	5	16 23 34·36			16 19		
	Moon II. L.	- -	16 17 46·32	127·98	64·39	16 4 12·2	-324·6	
	Moon II. U.	25·4	16 43 25·05	128·47	64·48	17 3 6·3	264·0	
	η Ophiuchi -	2½	17 2 47·39			15 34		
	ν Serpentis	4½	17 13 23·00			S. 12 43		
20	η Ophiuchi -	2½	17 2 47·41			S. 15 34		
	ν Serpentis	4½	17 13 23·03			12 43		
	Moon II. L.	- -	17 9 9·40	128·90	64·56	17 49 37·9	-200·9	
	Moon II. U.	26·4	17 34 58·25	129·21	64·60	S. 18 23 20·3	135·9	
21	Moon II. L.	- -	18 0 49·80	129·35	64·60	S. 18 43 54·8	- 69·7	
	Moon II. U.	27·4	18 26 41·66	129·26	64·55	18 51 11·1	3·0	
22	Moon II. L.	- -	18 52 31·11	128·94	64·44	S. 18 45 7·5	+ 63·4	
	Moon II. U.	28·5	19 18 15·26	128·38	64·27	18 25 53·0	128·7	
23	Moon II. L.	- -	19 43 51·40	127·61	64·06	S. 17 53 45·2	+192·2	
	Moon II. U.	29·5	20 9 17·11	126·65	63·80	17 9 11·2	253·0	
24	Moon I. L.	- -	20 32 23·52	125·62	63·52	S. 16 12 47·1	+310·4	
25	Moon I. U.	0·7	20 57 24·16	124·48	63·23	S. 15 5 15·8	+364·1	
	Moon I. L.	- -	21 22 11·03	123·34	62·94	13 47 26·3	413·4	
26	Moon I. U.	1·8	21 46 44·55	122·27	62·68	S. 12 20 12·7	+458·1	
	Moon I. L.	- -	22 11 6·04	121·34	62·46	10 44 32·7	497·8	
27	Moon I. U.	2·8	22 35 17·58	120·63	62·29	S. 9 1 26·8	+532·4	
	Moon I. L.	- -	22 59 22·07	120·18	62·21	7 11 57·3	561·7	
28	Moon I. U.	3·8	23 23 23·09	120·05	62·21	S. 5 17 8·0	+585·6	
	Moon I. L.	- -	23 47 24·87	120·31	62·32	3 18 4·5	604·0	
30	Piscium -	5	23 55 10·45			6 45		
	33 Piscium -	5	23 58 33·78			S. 6 27		
29	30 Piscium -	5	23 55 10·44			S. 6 45		
	33 Piscium -	5	23 58 33·77			6 27		
	Moon I. U.	4·9	0 11 32·20	120·98	62·52	S. 1 15 54·9	+616·7	

MOON-CULMINATING STARS, 1868. 39.

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of (<i>s</i> ' Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of (<i>s</i> ' R.A./ in 1 hour of Long.	Sidereal Time of (<i>s</i> ' Sem. per mer.	Declination.		
			h m s					
Jan. 29	Moon I. L.	- -	0 35 50.33	122.12	62.87	N. 0 48 11.6	+623.4	
	12 Ceti - - -	6	0 23 17.32			S. 4 41		
	13 Ceti - - -	5½	0 28 26.41			S. 4 19		
30	12 Ceti - - -	6	0 23 17.31			S. 4 41		
	13 Ceti - - -	5½	0 28 26.40			S. 4 19		
	Moon I. U.	5.9	1 0 25.00	123.74	63.33	N. 2 53 1.1	+623.8	
	Moon I. L.	- -	1 25 22.16	125.87	63.91	4 57 14.5	617.3	
	μ Piscium *	5	1 23 15.78			5 28		
	ν Piscium *	4½	1 34 33.39			N. 4 49		
31	μ Piscium *	5	1 23 15.76			N. 5 28		
	ν Piscium *	4½	1 34 33.38			4 49		
	Moon I. U.	6.9	1 50 47.89	128.51	64.63	6 59 27.0	+603.5	
	Moon I. L.	- -	2 16 48.37	131.65	65.48	8 58 6.2	581.6	
	ξ Ceti - - *	4½	2 6 0.08			8 14		
	ξ Ceti - - *	4	2 21 8.45			N. 7 52		
Feb. 1	ξ Ceti - - *	4½	2 6 0.06			N. 8 14		
	ξ Ceti - - *	4	2 21 8.43			7 52		
	Moon I. U.	7.9	2 43 29.42	135.26	66.38	10 51 29.5	+550.8	
	Moon I. L.	- -	3 10 56.21	139.27	67.39	12 37 45.5	510.2	
	ξ Tauri - - *	3½	3 20 1.27			9 16		
	ε Tauri - - *	6	3 25 27.80			N. 8 56		
2	ξ Tauri - - *	3½	3 20 1.26			N. 9 16		
	ε Tauri - - *	6	3 25 27.78			8 56		
	Moon I. U.	9.0	3 39 12.97	143.57	68.45	14 14 52.2	+459.1	
	Moon I. L.	- -	4 8 22.37	148.01	69.53	15 40 39.8	396.9	
	δ Tauri - -	4	4 15 19.98			17 13		
	ε Tauri - -	3½	4 20 55.20			N. 18 53		
3	δ Tauri - -	4	4 15 19.97			N. 17 13		
	ε Tauri - -	3½	4 20 55.18			18 53		
	Moon I. U.	10.0	4 38 25.05	152.41	70.56	16 52 53.2	+323.4	
	Moon I. L.	- -	5 9 19.08	156.53	71.52	17 49 17.8	238.9	
	119 Tauri - -	5½	5 24 29.42			18 30		
	ζ Tauri - -	3½	5 29 46.35			N. 21 4		
4	119 Tauri - -	5½	5 24 29.41			N. 18 30		
	ζ Tauri - -	3½	5 29 46.34			21 4		
	Moon I. U.	11.1	5 40 59.53	160.10	72.33	18 27 48.0	+144.5	
	Moon I. L.	- -	6 13 18.46	162.90	72.95	18 46 35.9	+ 42.3	
	η Geminor.	3½	6 6 55.57			22 33		
	μ Geminor.	3	6 14 59.48			N. 22 35		
5	η Geminor.	3½	6 6 55.56			N. 22 33		
	μ Geminor.	3	6 14 59.48			22 35		
	Moon I. U.	12.1	6 46 5.18	164.70	73.33	18 44 23.8	- 64.9	
	Moon I. L.	- -	7 19 6.96	165.39	73.45	18 20 31.8	-173.6	
	ζ Geminor.	4	6 56 17.87			20 46		
	λ Geminor.	3½	7 10 31.57			N. 16 47		
6	ζ Geminor.	4	6 56 17.87			N. 20 46		

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R. A. in 1 hour of Long.	Sidereal Time of C's Sem. per mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
Feb. 6	λ Geminor.	3½	h m s	s	s	N. 16 47		
	Moon I. U.	13.2	7 10 31.56			17 35	6.5 -279.8	
	Moon I. L.	- -	7 52 10.13	164.95	73.32	16 29	2.0 379.5	
	η Cancri - -	6	8 25 1.44	163.44	72.94	20 53		
	δ Cancri - -	4	8 25 5.48			N. 18 38		
			8 37 12.08					
	7 η Cancri - -	6	8 25 5.48			N. 20 53		
	δ Cancri - -	4	8 37 12.09			18 38		
	Moon I. U.	14.2	8 57 29.09	161.04	72.37	15 3	57.1 -469.3	
	ο Leonis - *	3½	9 34 7.80			10 29		
	ν Leonis - *	5	9 51 8.34			N. 13 4		
	8 ο Leonis - *	3½	9 34 7.81			N. 10 29		
	ν Leonis - *	5	9 51 8.35			13 4		
	Moon II. L.	- -	9 31 47.13	157.86	71.65	13 22	8.4 -546.5	
	Moon II. U.	15.2	10 3 0.85	154.38	70.83	11 26	19.3 609.2	
	ρ Leonis - *	4	10 25 52.67			9 59		
	ι Leonis - *	5	10 42 20.05			N. 11 14		
	9 ρ Leonis - *	4	10 25 52.69			N. 9 59		
	ι Leonis - *	5	10 42 20.06			11 14		
	Moon II. L.	- -	10 33 31.65	150.74	69.97	9 19	28.6 -656.7	
	Moon II. U.	16.3	11 3 18.78	147.14	69.11	7 4	39.5 689.0	
	β Virginis *	4½	11 39 5.60			7 16		
	β Virginis -	3½	11 43 50.21			N. 2 30		
	10 β Virginis *	4½	11 39 5.61			N. 7 16		
	β Virginis -	3½	11 43 50.23			2 30		
	Moon II. L.	- -	11 32 23.72	143.73	68.30	4 44	50.6 -706.8	
	Moon II. U.	17.3	12 0 49.46	140.63	67.54	2 22	48.8 711.4	
	η Virginis -	3½	12 13 10.03			N. 0 4		
	γ Virginis -	2½	12 34 59.17			S. 0 44		
	11 η Virginis -	3½	12 13 10.05			N. 0 4		
	γ Virginis -	2½	12 34 59.19			S. 0 44		
	Moon II. L.	- -	12 28 40.20	137.90	66.90	N. 0 1	5.8 -703.9	
	Moon II. U.	18.3	12 56 0.67	135.58	66.35	S. 2 18	4.0 686.1	
	θ Virginis -	4½	13 3 7.75			S. 4 50		
	ζ Virginis -	3½	13 27 58.83			N. 0 5		
	12 θ Virginis -	4½	13 3 7.78			S. 4 50		
	ζ Virginis -	3½	13 27 58.85			N. 0 5		
	Moon II. L.	- -	13 22 55.89	133.69	65.90	S. 4 32	43.8 -659.2	
	Moon II. U.	19.4	13 49 30.80	132.20	65.54	6 41	14.0 624.7	
	κ Virginis -	4½	14 5 52.08			9 40		
	ι Virginis -	4	14 9 6.37			S. 5 22		
	13 κ Virginis -	4½	14 5 52.11			S. 9 40		
	ι Virginis -	4	14 9 6.40			5 22		
	Moon II. L.	- -	14 15 50.11	131.08	65.28	8 42	9.4 -583.6	
	Moon II. U.	20.4	14 41 58.12	130.30	65.09	10 34	18.2 -537.0	
	ν Libræ - -	5	14 59 16.37			15 45		
	ζ Libræ - -	4	15 20 49.18			S. 16 15		

MOON-CULMINATING STARS, 1868. 395

At Greenwich Transit.								
Month and Day.	Name.	Mag- nitude.						
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
			h m s	s	s	° ' "	"	
Feb. 14	♈ Libræ - -	5	14 59 16.40			S. 15 45		
	♏ Libræ - -	4	15 20 49.22			16 15		
	Moon II. L.	- -	15 7 58.50	129.80	64.98	12 16 39.9	-485.9	
	Moon II. U.	21.4	15 33 54.28	129.53	64.91	13 48 23.4	430.8	
	♏ Scorp̄ii - -	2	15 57 45.82			19 26		
	♏ Scorp̄ii - -	4	16 4 19.60			S. 19 7		
15	♏ Scorp̄ii - -	2	15 57 45.85			S. 19 26		
	♏ Scorp̄ii - -	4	16 4 19.63			19 7		
	Moon II. L.	- -	15 59 47.85	129.42	64.88	15 8 45.6	-372.4	
	Moon II. U.	22.5	16 25 40.78	129.41	64.87	16 17 10.7	311.4	
	♐ Ophiuchi -	6	16 54 7.67			18 41		
	♐ Ophiuchi -	2½	17 2 48.16			S. 15 34		
16	♐ Ophiuchi -	6	16 54 7.70			S. 18 41		
	♐ Ophiuchi -	2½	17 2 48.20			15 34		
	Moon II. L.	- -	16 51 33.92	129.45	64.86	17 13 9.5	-248.1	
	Moon II. U.	23.5	17 17 27.38	129.46	64.84	17 56 18.9	183.2	
	♑ Serpentiis	3½	17 30 1.19			15 19		
	♑ Sagittarii	5	17 51 43.30			S. 23 48		
17	♑ Serpentiis	3½	17 30 1.23			S. 15 19		
	♑ Sagittarii	5	17 51 43.34			23 48		
	Moon II. L.	- -	17 43 20.69	129.41	64.80	18 26 22.2	-117.2	
	Moon II. U.	24.5	18 9 12.76	129.25	64.73	18 43 9.7	-50.6	
	♑ Sagittarii	5	18 46 10.94			22 54		
	♑ Sagittarii	4	18 49 50.15			S. 21 17		
18	♑ Sagittarii	5	18 46 10.97			S. 22 54		
	♑ Sagittarii	4	18 49 50.18			21 17		
	Moon II. L.	- -	18 35 2.10	128.95	64.62	18 46 37.9	+15.9	
	Moon II. U.	25.6	19 0 47.00	128.50	64.47	18 36 51.3	81.7	
	♑ Sagittarii	4	19 13 59.78			18 6		
	♑ Sagittarii	5	19 34 56.90			S. 16 26		
19	♑ Sagittarii	4	19 13 59.80			S. 18 6		
	♑ Sagittarii	5	19 34 56.92			16 26		
	Moon II. L.	- -	19 26 25.61	127.90	64.27	18 14 1.9	+146.3	
	Moon II. U.	26.6	19 51 56.18	127.17	64.05	S. 17 38 28.7	208.9	
20	Moon II. L.	- -	20 17 17.23	126.32	63.79	S. 16 50 38.7	+269.0	
	Moon II. U.	27.6	20 42 27.65	125.41	63.53	15 51 6.2	-325.9	
21	Moon II. L.	- -	21 7 26.90	124.47	63.26	S. 14 40 32.4	+379.1	
	Moon II. U.	28.7	21 32 14.98	123.55	63.00	13 19 44.0	428.2	
22	Moon II. L.	- -	21 56 52.52	122.73	62.77	S. 11 49 34.4	+472.6	
	Moon II. U.	29.7	22 21 20.88	122.03	62.58	10 11 0.9	512.1	
23	Moon I. L.	- -	22 43 37.06	121.54	62.44	S. 8 25 6.1	+546.2	
24	Moon I. U.	0.9	23 7 53.54	121.25	62.38	S. 6 32 55.6	+574.6	
	Moon I. L.	- -	23 32 8.23	121.25	62.40	4 35 38.9	597.1	
25	Moon I. U.	2.0	23 56 24.77	121.56	62.50	S. 2 34 28.9	+613.5	

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Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
Feb. 26	Moon I. U.	3.0	^h 0 45 ^m 19.82	123.28	63.02	N. 1 34 24.7	+626.5	
	Moon I. L.	-	1 10 7.46	124.73	63.43	3 39 26.6	622.6	
	27 Moon I. U.	4.0	1 35 14.97	126.59	63.96	N. 5 42 57.5	+611.3	
	Moon I. L.	-	2 0 47.28	128.86	64.58	7 43 26.8	592.2	
	54 Ceti - - *	6	1 43 51.12			10 23		
	ξ Ceti - - *	4½	2 5 59.69			N. 8 14		
	28 54 Ceti - - *	6	1 43 51.11			N. 10 23		
	ξ Ceti - - *	4½	2 5 59.68			8 14		
	Moon I. U.	5.1	2 26 49.21	131.52	65.30	9 39 18.2	+564.9	
	Moon I. L.	-	2 53 25.22	134.54	66.10	11 28 50.7	529.0	
	μ Ceti - - *	4	2 37 48.12			9 33		
	λ Ceti - - *	5½	2 52 38.44			N. 8 23		
29	μ Ceti - - *	4	2 37 48.11			N. 9 33		
	λ Ceti - - *	5½	2 52 38.43			8 23		
	Moon I. U.	6.1	3 20 39.23	137.85	66.96	13 10 18.6	+484.1	
	Moon I. L.	-	3 48 34.26	141.35	67.86	14 41 51.2	429.8	
	e Tauri - - *	5	3 41 1.98			10 44		
	λ Tauri - - *	3½	3 53 22.09			N. 12 7		
	Mar. 1	e Tauri - - *	5	3 41 1.96			N. 10 44	
		λ Tauri - - *	3½	3 53 22.07			12 7	
		Moon I. U.	7.1	4 17 12.02	144.95	68.76	16 1 35.6	+366.0
		Moon I. L.	-	4 46 32.66	148.48	69.63	17 7 38.3	292.9
		α Tauri - -	1	4 28 21.02			16 14	
		τ Tauri - -	4½	4 34 19.68			N. 22 42	
2 α Tauri - -		1	4 28 21.00			N. 16 14		
τ Tauri - -		4½	4 34 19.65			22 42		
Moon I. U.		8.2	5 16 34.46	151.77	70.42	17 58 10.9	+211.1	
Moon I. L.		-	5 47 13.52	154.65	71.10	18 31 33.8	121.5	
ζ Tauri - -		3½	5 29 45.91			21 4		
χ ⁱ Orionis -		4½	5 46 34.45			N. 20 15		
3	ζ Tauri - -	3½	5 29 45.89			N. 21 4		
	χ ⁱ Orionis -	4½	5 46 34.43			20 15		
	Moon I. U.	9.2	6 18 23.90	156.96	71.63	18 46 23.4	+25.9	
	Moon I. L.	-	6 49 57.78	158.55	71.97	18 41 38.9	-73.7	
	γ Geminor.	2½	6 30 5.84			16 30		
	λ Geminor.	3½	7 10 31.30			N. 16 47		
	4 γ Geminor.	2½	6 30 5.82			N. 16 30		
	λ Geminor.	3½	7 10 31.28			16 47		
	Moon I. U.	10.3	7 21 45.94	159.33	72.12	18 16 48.5	-174.6	
	Moon I. L.	-	7 53 38.50	159.29	72.08	17 31 54.2	273.9	
	μ ⁱ Cancri - -	5	8 0 0.70			21 58		
	ζ Cancri - -	5½	8 4 39.45			N. 18 3		
5	μ ⁱ Cancri - -	5	8 0 0.69			N. 21 58		
	ζ Cancri - -	5½	8 4 39.44			18 3		
	Moon I. U.	11.3	8 25 25.77	158.46	71.85	16 27 34.3	-368.4	
	Moon I. L.	-	8 56 58.89	156.96	71.45	N. 15 5 2.5	-455.4	

MOON-CULMINATING STARS, 1868. 39

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
Mar. 5	δ Cancri - -	4	h m s 8 37 12.00	"	"	N. 18 38	"	
	α Cancri - *	4	8 51 17.13			12 22		
6	δ Cancri - -	4	8 37 11.99			N. 18 38		
	α Cancri - *	4	8 51 17.12			12 22		
	Moon I. U.	12.3	9 28 10.62	154.93	70.94	13 26 5.2	-532.3	
	Moon I. L.	- -	9 58 55.62	152.53	70.35	11 32 55.4	597.2	
	γ Leonis - *	5	9 51 8.44			13 4		
	Α Leonis - *	5	10 0 55.03			N. 10 39		
7	γ Leonis - *	5	9 51 8.43			N. 13 4		
	Α Leonis - *	5	10 0 55.03			10 39		
	Moon I. U.	13.4	10 29 10.61	149.95	69.71	9 28 5.8	-648.8	
	Moon I. L.	- -	10 58 54.29	147.34	69.07	7 14 21.0	686.3	
	c Leonis - *	5	10 53 55.63			6 48		
	χ Leonis - *	5	10 58 13.72			N. 8 3		
8	c Leonis - *	5	10 53 55.63			N. 6 48		
	χ Leonis - *	5	10 58 13.73			8 3		
	Moon II. U.	14.4	11 30 23.90	144.71	68.45	4 54 30.3	-709.8	
	β Virginis -	3½	11 43 50.59			2 30		
	γ Virginis -	3½	12 13 10.46			N. 0 4		
	β Virginis -	3½	11 43 50.60			N. 2 30		
9	γ Virginis -	3½	12 13 10.47			0 4		
	Moon II. L.	- -	11 59 6.18	142.38	67.88	2 31 20.3	-719.6	
	Moon II. U.	15.5	12 27 21.94	140.30	67.37	7 30.8	716.6	
	γ Virginis -	2½	12 34 59.66			S. 0 44		
	θ Virginis -	4½	13 3 8.30			S. 4 50		
	γ Virginis -	2½	12 34 59.68			S. 0 44		
10	θ Virginis -	4½	13 3 8.31			4 50		
	Moon II. L.	- -	12 55 14.38	138.50	66.94	2 14 29.8	-701.7	
	Moon II. U.	16.5	13 22 46.99	136.99	66.59	4 32 27.2	676.2	
	m Virginis -	6	13 34 42.44			8 3		
	94 Virginis -	6	13 59 19.78			S. 8 16		
	m Virginis -	6	13 34 42.46			S. 8 3		
11	94 Virginis -	6	13 59 19.80			8 16		
	Moon II. L.	- -	13 50 3.21	135.76	66.31	6 44 22.6	-641.6	
	Moon II. U.	17.5	14 17 6.27	134.79	66.09	8 48 32.7	598.9	
	α Libræ - -	2½	14 43 35.84			15 29		
	δ Libræ - -	5	14 53 56.38			S. 8 0		
	α Libræ - -	2½	14 43 35.86			S. 15 29		
12	δ Libræ - -	5	14 53 56.40			8 0		
	Moon II. L.	- -	14 43 59.01	134.03	65.93	10 43 29.5	-549.6	
	Moon II. U.	18.6	15 10 43.78	133.45	65.81	12 27 59.8	494.7	
	γ Libræ - -	4½	15 28 9.61			14 21		
	θ Libræ - -	4½	15 46 19.71			S. 16 20		
	γ Libræ - -	4½	15 28 9.63			S. 14 21		
13	θ Libræ - -	4½	15 46 19.74			16 20		
	Moon II. L.	- -	15 37 22.37	132.99	65.73	S. 14 1 3.7	-435.3	

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
Mar. 13	Moon II. U.	19.6	^h ^m ^s 16 3 55.92	132.61	65.66	S. 15 21 53.9	- 372.9	
	ψ Ophiuchi-	5	16 16 23.61			19 44		
	φ Ophiuchi-	5	16 23 36.00			S. 16 19		
14	ψ Ophiuchi-	5	16 16 23.64			S. 19 44		
	φ Ophiuchi-	5	16 23 36.03			16 19		
	Moon II. L.	- -	16 30 25.07	132.25	65.59	16 29 54.1	- 307.2	
	Moon II. U.	20.6	16 56 49.80	131.87	65.50	17 24 38.4	240.0	
	ξ Serpentis	3½	17 30 2.01			15 19		
	58 Ophiuchi-	5	17 35 21.52			S. 21 37		
15	ξ Serpentis	3½	17 30 2.04			S. 15 19		
	58 Ophiuchi-	5	17 35 21.55			21 37		
	Moon II. L.	- -	17 23 9.65	131.43	65.40	18 5 49.8	- 171.8	
	Moon II. U.	21.7	17 49 23.80	130.91	65.27	18 33 19.8	103.2	
	μ ¹ Sagittarii	4	18 5 52.12			21 5		
	B.A.C. 6279	4½	18 21 40.47			S. 14 39		
16	μ ¹ Sagittarii	4	18 5 52.15			S. 21 5		
	B.A.C. 6279	4½	18 21 40.50			14 39		
	Moon II. L.	- -	18 15 31.15	130.30	65.10	18 47 7.7	- 34.9	
	Moon II. U.	22.7	18 41 30.47	129.58	64.91	18 47 20.1	+ 32.6	
	κ Sagittarii	3	19 1 54.41			21 14		
	ρ ¹ Sagittarii	4	19 14 0.50			S. 18 6		
17	κ Sagittarii	3	19 1 54.44			S. 21 14		
	ρ ¹ Sagittarii	4	19 14 0.53			18 6		
	Moon II. L.	- -	19 7 20.54	128.75	64.68	18 34 10.2	+ 98.8	
	Moon II. U.	23.7	19 33 0.30	127.86	64.42	18 7 57.1	163.1	
	ξ ¹ Capricorni	6	20 5 4.06			13 0		
	α ¹ Capricorni	3½	20 10 43.03			S. 12 57		
18	ξ ¹ Capricorni	6	20 5 4.09			S. 13 0		
	α ¹ Capricorni	3½	20 10 43.05			12 57		
	Moon II. L.	- -	19 58 28.97	126.91	64.14	17 29 6.1	+ 225.0	
	Moon II. U.	24.8	20 23 46.13	125.95	63.86	16 38 7.4	284.3	
	21 Capricorni	6	20 53 25.07			18 3		
	θ Capricorni	4	20 58 30.65			S. 17 45		
19	21 Capricorni	6	20 53 25.09			S. 18 3		
	θ Capricorni	4	20 58 30.67			17 45		
	Moon II. L.	- -	20 48 51.77	125.00	63.58	15 35 36.6	+ 340.3	
	Moon II. U.	25.8	21 13 46.45	124.13	63.31	S. 14 22 14.3	392.8	
20	Moon II. L.	- -	21 38 31.18	123.35	63.07	S. 12 58 45.4	+ 441.4	
	Moon II. U.	26.8	22 3 7.51	122.73	62.88	11 25 59.5	485.5	
21	Moon II. L.	- -	22 27 37.54	122.30	62.74	S. 9 44 51.5	+ 525.0	
	Moon II. U.	27.9	22 52 3.74	122.10	62.65	7 56 20.4	559.3	
22	Moon II. L.	- -	23 16 29.13	122.17	62.65	S. 6 1 30.8	+ 588.0	
	Moon II. U.	28.9	23 40 57.05	122.53	62.73	4 1 32.0	610.7	
23	Moon II. L.	- -	0 5 31.20	123.21	62.90	S. 1 57 39.5	+ 626.9	
24	Moon I. U.	0.2	0 28 9.18	124.18	63.17	N. 0 8 46.4	+ 636.2	

MOON-CULMINATING STARS, 1868. 399

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R. A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
			h m s	s	s	° ' "	"	
Mar. 24	Moon I. L.	- -	0 53 7.08	125.53	63.53	N. 2 16 19.3	+638.0	
25	Moon I. U.	1.3	1 18 23.27	127.23	63.99	N. 4 23 26.8	+631.9	
	Moon I. L.	- -	1 44 1.94	129.27	64.54	6 28 31.3	617.4	
26	Moon I. U.	2.3	2 10 7.03	131.63	65.18	N. 8 29 49.6	+594.1	
	Moon I. L.	- -	2 36 42.13	134.27	65.88	10 25 34.0	561.7	
27	Moon I. U.	3.3	3 3 50.26	137.12	66.64	N. 12 13 53.3	+519.9	
	Moon I. L.	- -	3 31 33.50	140.10	67.42	13 52 54.1	468.6	
	ξ Tauri - *	3½	3 20 0.42			9 16		
	f Tauri - *	4	3 23 34.79			N. 12 29		
28	ξ Tauri - *	3½	3 20 0.41			N. 9 16		
	f Tauri - *	4	3 23 34.77			12 29		
	Moon I. U.	4.4	3 59 52.92	143.13	68.20	15 20 43.6	+408.1	
	Moon I. L.	- -	4 28 48.16	146.06	68.96	16 35 32.0	338.5	
	ε Tauri - -	3½	4 20 54.25			18 53		
	α Tauri - -	1	4 28 20.55			N. 16 14		
29	ε Tauri - -	3½	4 20 54.23			N. 18 53		
	α Tauri - -	1	4 28 20.53			16 14		
	Moon I. U.	5.4	4 58 17.36	148.76	69.64	17 35 35.8	+260.8	
	Moon I. L.	- -	5 28 16.95	151.10	70.23	18 19 22.9	176.0	
	ζ Tauri - -	3½	5 29 45.39			21 4		
	χ ¹ Orionis -	4½	5 46 33.93			N. 20 15		
30	ζ Tauri - -	3½	5 29 45.37			N. 21 4		
	χ ¹ Orionis -	4½	5 46 33.91			20 15		
	Moon I. U.	6.4	5 58 41.83	152.95	70.69	18 45 36.5	+ 85.5	
	Moon I. L.	- -	6 29 25.47	154.21	70.99	18 53 20.1	- 8.7	
	ν Geminor.	4½	6 21 7.66			20 18		
	γ Geminor.	2½	6 30 5.34			N. 16 30		
31	ν Geminor.	4½	6 21 7.64			N. 20 18		
	γ Geminor.	2½	6 30 5.32			16 30		
	Moon I. U.	7.5	7 0 20.41	154.83	71.14	18 42 0.8	-104.6	
	Moon I. L.	- -	7 31 18.78	154.79	71.12	18 11 32.6	199.8	
	λ Geminor.	3½	7 10 30.81			16 47		
	63 Geminor.	5½	7 19 54.64			N. 21 43		
Apr. 1	λ Geminor.	3½	7 10 30.79			N. 16 47		
	63 Geminor.	5½	7 19 54.62			21 43		
	Moon I. U.	8.5	8 2 12.84	154.13	70.94	17 22 17.7	-292.0	
	Moon I. L.	- -	8 32 55.66	152.93	70.63	16 15 5.7	379.0	
	δ Cancri - -	4	8 37 11.64			18 38		
	α Cancri - *	4	8 51 16.80			N. 12 22		
2	δ Cancri - -	4	8 37 11.62			N. 18 38		
	α Cancri - *	4	8 51 16.79			12 22		
	Moon I. U.	9.6	9 3 21.52	151.32	70.22	14 51 11.7	-458.6	
	Moon I. L.	- -	9 33 26.22	149.43	69.73	13 12 14.0	-529.3	
	ο Leonis - *	3½	9 34 7.61			10 29		
	ν Leonis - *	5	9 51 8.23			N. 13 4		

400 MOON-CULMINATING STARS, 1868.

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
			h m s	s	s	° ' "		
Apr. 3	o Leonis - *	3½	9 34 7.59			N. 10 29		
	γ Leonis - *	5	9 51 8.22			13 4		
	Moon I. U.	10.6	10 3 7.25	147.40	69.20	11 20 8.9		-589.7
	Moon I. L.	- -	10 32 23.62	145.34	68.67	9 17 7.1		638.7
	ρ Leonis - *	4	10 25 52.73			9 59		
	l Leonis - *	5	10 42 20.20			N. 11 14		
4	ρ Leonis - *	4	10 25 52.72			N. 9 59		
	l Leonis - *	5	10 42 20.19			11 14		
	Moon I. U.	11.6	11 1 15.77	143.38	68.16	7 5 28.8		-675.7
	Moon I. L.	- -	11 29 45.29	141.58	67.69	4 47 40.5		700.3
	γ Virginis *	4½	11 39 6.02			7 16		
	β Virginis -	3½	11 43 50.66			N. 2 30		
5	γ Virginis *	4½	11 39 6.02			N. 7 16		
	β Virginis -	3½	11 43 50.65			2 30		
	Moon I. U.	12.7	11 57 54.61	140.01	67.28	2 26 9.5		-712.8
	Moon I. L.	- -	12 25 46.63	138.70	66.94	0 3 22.1		713.2
	η Virginis -	3½	12 13 10.61			N. 0 4		
	γ Virginis -	2½	12 34 59.86			S. 0 44		
6	η Virginis -	3½	12 13 10.61			N. 0 4		
	γ Virginis -	2½	12 34 59.86			S. 0 44		
	Moon I. U.	13.7	12 53 24.53	137.66	66.67	2 18 20.5		-702.1
	α Virginis -	1	13 18 16.09			10 28		
	l Virginis -	5	13 25 8.00			S. 5 35		
						S. 10 28		
7	α Virginis -	1	13 18 16.10			5 35		
	l Virginis -	5	13 25 8.01			4 36 44.2		-680.2
	Moon II. L.	- -	13 23 4.42	136.84	66.48	6 49 44.5		648.3
	Moon II. U.	14.7	13 50 22.99	136.29	66.35	9 40		
	κ Virginis -	4½	14 5 53.18			S. 12 46		
	λ Virginis -	4½	14 11 59.96			S. 9 40		
8	κ Virginis -	4½	14 5 53.19			12 46		
	λ Virginis -	4½	14 11 59.98			8 55 27.8		-607.5
	Moon II. L.	- -	14 17 36.08	135.92	66.27	10 52 13.5		558.9
	Moon II. U.	15.8	14 44 45.51	135.68	66.22	8 54		
	β Libræ - -	2	15 9 55.82			S. 16 15		
	γ Libræ - -	4	15 20 50.59			S. 8 54		
9	β Libræ - -	2	15 9 55.84			16 15		
	γ Libræ - -	4	15 20 50.61			12 38 34.5		-503.6
	Moon II. L.	- -	15 11 52.52	135.50	66.21	14 13 16.7		442.7
	Moon II. U.	16.8	15 38 57.56	135.34	66.20	11 1		
	51 Libræ - -	4½	15 57 8.11			S. 19 7		
	γ Scorpil -	4	16 4 21.14			S. 11 1		
10	51 Libræ - -	4½	15 57 8.13			19 7		
	γ Scorpil -	4	16 4 21.16			15 35 21.4		-377.5
	Moon II. L.	- -	16 6 0.42	135.13	66.17	16 44 3.3		309.1
	Moon II. U.	17.8	16 33 0.20	134.82	66.13	S. 15 34		
	η Ophiuchi-	2½	17 2 49.77					

MOON-CULMINATING STARS, 1868. 401

1 Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. per. mer.	Declination.		
			h m s	"	"	° ' "	"	
Apr. 10	♄ Serpentis	4½	17 13 25.34			S. 12 43		
11	♄ Ophiuchi-	2½	17 2 49.80			S. 15 34		
	♄ Serpentis	4½	17 13 25.37			12 43		
	Moon II. L.	- -	16 59 55.50	134.37	66.05	17 38 51.0	- 238.6	
	Moon II. v.	18.9	17 26 44.46	133.76	65.93	18 19 25.7	167.1	
	♄ Sagittarii	5	17 51 45.02			23 48		
	♄ Sagittarii	4	18 5 52.94			S. 21 5		
12	♄ Sagittarii	5	17 51 45.05			S. 23 48		
	♄ Sagittarii	4	18 5 52.97			21 5		
	Moon II. L.	- -	17 53 25.03	132.97	65.76	18 45 40.8	- 95.5	
	Moon II. v.	19.9	18 19 55.09	132.01	65.54	18 57 40.1	- 24.6	
	♄ Sagittarii	4	18 49 51.78			21 17		
	♄ Sagittarii	4	18 56 46.83			S. 21 56		
13	♄ Sagittarii	4	18 49 51.82			S. 21 17		
	♄ Sagittarii	4	18 56 46.86			21 56		
	Moon II. L.	- -	18 46 12.74	130.91	65.27	18 55 37.2	+ 44.8	
	Moon II. v.	20.9	19 12 16.38	129.68	64.97	18 39 53.3	112.1	
	♄ Sagittarii	5	19 34 58.39			16 26		
	♄ Sagittarii	5	19 38 39.95			S. 20 4		
14	♄ Sagittarii	5	19 34 58.42			S. 16 26		
	♄ Sagittarii	5	19 38 39.98			20 4		
	Moon II. L.	- -	19 38 4.84	128.39	64.64	18 10 56.1	+ 176.9	
	Moon II. v.	22.0	20 3 37.59	127.07	64.29	17 29 19.0	238.7	
	♄ Capricorni	3	20 13 35.68			15 12		
	♄ Capricorni	5	20 21 19.62			S. 18 15		
15	♄ Capricorni	3	20 13 35.71			S. 15 12		
	♄ Capricorni	5	20 21 19.65			18 15		
	Moon II. L.	- -	20 28 54.65	125.78	63.95	16 35 39.1	+ 297.3	
	Moon II. v.	23.0	20 53 56.77	124.59	63.62	15 30 36.9	352.4	
	♄ Capricorni	4½	21 14 53.41			17 24		
	♄ Capricorni	3½	21 32 46.20			S. 17 15		
16	♄ Capricorni	4½	21 14 53.44			S. 17 24		
	♄ Capricorni	3½	21 32 46.23			17 15		
	Moon II. L.	- -	21 18 45.35	123.54	63.32	14 14 56.1	+ 403.8	
	Moon II. v.	24.0	21 43 22.43	122.68	63.07	12 49 22.4	451.2	
	♄ Aquarii -	4½	22 9 51.54			8 26		
	♄ Aquarii -	4½	22 23 38.99			S. 11 21		
17	♄ Aquarii -	4½	22 9 51.57			S. 8 26		
	♄ Aquarii -	4½	22 23 39.01			11 21		
	Moon II. L.	- -	22 7 50.54	122.05	62.87	11 14 44.0	+ 494.5	
	Moon II. v.	25.1	22 32 12.80	121.71	62.75	9 31 52.7	533.3	
	♄ Aquarii -	4	22 45 42.93			8 17		
	♄ Aquarii -	4½	23 7 28.55			S. 6 46		
18	♄ Aquarii -	4	22 45 42.96			S. 8 17		
	♄ Aquarii -	4½	23 7 28.58			6 46		
	Moon II. L.	- -	22 56 32.77	121.68	62.71	S. 7 41 43.3	+ 567.4	

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Declination.	Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R. A. in 1 hour of Long.	Sidereal Time of C's Sem. par. mer.				
Apr. 18	Moon II. U.	26.1	h m s	23 20 54.41	121.99	62.76	S. 5 45 15.2	+596.13	
19	Moon II. L.	-	23 45 21.98	122.67	62.91	S. 3 43 33.6	+619.6		
	Moon II. U.	27.1	0 9 59.97	123.73	63.16	S. 1 37 49.1	636.7		
20	Moon II. L.	-	0 34 53.07	125.18	63.51	N. 0 30 39.8	+646.9		
	Moon II. U.	28.2	1 0 5.97	127.03	63.97	2 40 26.1	649.5		
21	Moon II. L.	-	1 25 43.36	129.26	64.54	N. 4 49 54.3	+643.8		
	Moon II. U.	29.2	1 51 49.59	131.83	65.19	6 57 20.1	629.0		
22	Moon I. L.	-	2 16 16.70	134.58	65.93	N. 9 0 50.1	+604.4		
23	Moon I. U.	0.7	2 43 30.09	137.68	66.71	N. 10 58 23.3	+569.4		
	Moon I. L.	-	3 11 21.56	140.92	67.54	12 47 53.8	523.8		
24	Moon I. U.	1.7	3 39 52.12	144.17	68.36	N. 14 27 11.9	+467.4		
	Moon I. L.	-	4 9 1.11	147.30	69.15	15 54 10.8	400.7		
25	Moon I. U.	2.7	4 38 46.03	150.13	69.87	N. 17 6 49.3	+324.2		
	Moon I. L.	-	5 9 2.48	152.52	70.47	18 3 18.9	239.4		
26	Moon I. U.	3.8	5 39 44.23	154.32	70.94	N. 18 42 9.6	+148.1		
	Moon I. L.	-	6 10 43.48	155.43	71.23	19 2 14.8	+52.2		
	♊ Geminor.	4½	6 21 7.22			20 18			
	♊ Geminor.	2½	6 30 4.90			N. 16 30			
27	♊ Geminor.	4½	6 21 7.20			N. 20 18			
	♊ Geminor.	2½	6 30 4.89			16 30			
	Moon I. U.	4.8	6 41 51.42	155.77	71.34	19 2 55.7	-45.5		
	Moon I. L.	-	7 12 58.91	155.35	71.26	18 44 4.5	142.7		
	♊ Geminor.	4	6 56 16.59			20 46			
	♊ Geminor.	3½	7 10 30.35			N. 16 47			
28	♊ Geminor.	4	6 56 16.58			N. 20 46			
	♊ Geminor.	3½	7 10 30.33			16 47			
	Moon I. U.	5.8	7 43 57.23	154.25	71.01	18 6 3.0	+236.8		
	Moon I. L.	-	8 14 38.70	152.57	70.61	17 9 41.8	325.6		
	♊ Cancri -	6	8 25 4.51			20 53			
	♊ Cancri -	4½	8 35 38.93			N. 21 56			
29	♊ Cancri -	6	8 25 4.50			N. 20 53			
	♊ Cancri -	4½	8 35 38.91			21 56			
	Moon I. U.	6.9	8 44 57.35	150.48	70.10	15 56 15.9	+407.3		
	Moon I. L.	-	9 14 49.02	148.11	69.53	14 27 20.2	480.4		
	♊ Cancri -	4	8 51 16.36			12 22			
	♊ Cancri -	5	9 0 36.29			N. 11 12			
30	♊ Cancri -	4	8 51 16.35			N. 12 22			
	♊ Cancri -	5	9 0 36.28			11 12			
	Moon I. U.	7.9	9 44 11.57	145.65	68.91	12 44 44.4	+543.9		
	Moon I. L.	-	10 13 4.66	143.23	68.30	10 50 28.8	+597.0		
	♊ Leonis -	5	10 0 54.49			10 39			
	♊ Leonis -	4	10 25 52.44			N. 9 59			
May 1	♊ Leonis -	5	10 0 54.48			N. 10 39			
	♊ Leonis -	4	10 25 52.43			N. 9 59			

MOON-CULMINATING STARS, 1868. 403

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Declination.	Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.				
May 1	Moon I. U.	8.9	^h 10 ^m 41 ^s 29.61	^s 149.97	^s 67.71	N. 8 46 39.8	-639.4		
	Moon I. L.	-	11 9 28.95	138.97	67.19	6 35 26.4	671.0		
	♌ Leonis - *	5	10 58 13.43			8 3			
	♌ Leonis - *	4	11 14 20.88			N. 6 45			
2	♌ Leonis - *	5	10 58 13.42			N. 8 3			
	♌ Leonis - *	4	11 14 20.87			6 45			
	Moon I. U.	10.0	11 37 6.16	137.29	66.74	4 18 58.9	-691.7		
	Moon I. L.	-	12 4 25.22	135.95	66.38	1 59 27.3	701.8		
	♍ Virginis -	3½	11 43 50.50			2 30			
	♍ Virginis -	3½	12 13 10.53			N. 0 4			
3	♍ Virginis -	3½	11 43 50.49			N. 2 30			
	♍ Virginis -	3½	12 13 10.52			N. 0 4			
	Moon I. U.	11.0	12 31 30.47	134.98	66.11	S. 0 21 1.6	-701.3		
	Moon I. L.	-	12 58 26.23	134.37	65.92	2 40 23.7	690.7		
	♍ Virginis -	4½	13 3 8.61			4 50			
	♌ Virginis -	1	13 18 16.17			S. 10 28			
4	♍ Virginis -	4½	13 3 8.61			S. 4 50			
	♌ Virginis -	1	13 18 16.18			10 28			
	Moon I. U.	12.0	13 25 16.49	134.06	65.83	4 56 39.2	-670.3		
	Moon I. L.	-	13 52 4.78	134.03	65.80	7 7 53.1	640.6		
	♍ Virginis -	4½	14 5 53.38			9 40			
	♍ Virginis -	4	14 9 7.68			S. 5 22			
5	♍ Virginis -	4½	14 5 53.38			S. 9 40			
	♍ Virginis -	4	14 9 7.68			5 22			
	Moon I. U.	13.1	14 18 54.06	134.21	65.84	9 12 17.8	-602.2		
	Moon I. L.	-	14 45 46.40	134.53	65.91	11 8 12.8	555.7		
	♎ Libræ - -	2½	14 43 36.67			15 30			
	♎ Libræ - -	6	14 47 14.93			S. 11 22			
6	♎ Libræ - -	2½	14 43 36.69			S. 15 30			
	♎ Libræ - -	6	14 47 14.94			11 22			
	Moon II. U.	14.1	15 14 55.04	134.93	66.01	12 54 6.9	-502.2		
	♎ Libræ - -	4½	15 46 20.85			16 20			
	48 Libræ - -	4½	15 50 49.98			S. 13 54			
7	♎ Libræ - -	4½	15 46 20.86			S. 16 20			
	48 Libræ - -	4½	15 50 49.99			13 54			
	Moon II. L.	-	15 41 56.35	135.28	66.11	14 28 40.6	-442.5		
	Moon II. U.	15.2	16 9 1.37	135.53	66.19	15 50 45.4	377.6		
	♏ Ophiuchi-	5	16 16 24.89			19 44			
	♏ Ophiuchi-	5	16 23 37.28			S. 16 19			
8	♏ Ophiuchi-	5	16 16 24.91			S. 19 44			
	♏ Ophiuchi-	5	16 23 37.30			16 19			
	Moon II. L.	-	16 36 8.39	135.60	66.23	16 59 26.7	-308.8		
	Moon II. U.	16.2	17 3 14.96	135.45	66.21	17 54 4.5	-237.2		
	♏ Serpentis	3½	17 30 3.49			15 19			
	58 Ophiuchi-	5	17 35 33.07			S. 21 37			
9	♏ Serpentis	3½	17 30 3.51			S. 15 19			

404 MOON-CULMINATING STARS, 1868.

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
			h m s	s	s	° ' "	"	
May 9	58 Ophiuchi-	5	17 35 33.09			S. 21 37		
	Moon II.L.	- -	17 30 18.01	135° 01	66° 14	18 34 12.7	- 164.0	
	Moon II. u.	17.3	17 57 14.18	134° 30	65° 99	18 59 40.0	90.6	
	15 Sagittarii	5	18 7 21.93			20 46		
	21 Sagittarii	5	18 17 30.88			S. 20 37		
10	15 Sagittarii	5	18 7 21.96			S. 20 46		
	21 Sagittarii	5	18 17 30.91			20 37		
	Moon II.L.	- -	18 24 0.09	133° 30	65° 77	19 10 28.7	- 17.8	
	Moon II. u.	18.3	18 50 32.54	132° 07	65° 49	19 6 52.8	+ 53.4	
	♄ Sagittarii	3	19 1 56.08			21 14		
	♄ Sagittarii	4	19 14 2.14			S. 18 6		
11	♄ Sagittarii	3	19 1 56.11			S. 21 14		
	♄ Sagittarii	4	19 14 2.17			18 6		
	Moon II.L.	- -	19 16 48.89	130° 63	65° 15	18 49 17.3	+ 122.1	
	Moon II. u.	19.3	19 42 47.10	129° 06	64° 78	18 18 15.7	187.6	
	β Capricorni	3	20 13 36.50			15 12		
	♄ Capricorni	5	20 19 46.73			S. 18 38		
12	β Capricorni	3	20 13 36.53			S. 15 12		
	♄ Capricorni	5	20 19 46.76			18 38		
	Moon II.L.	- -	20 8 26.09	127° 43	64° 38	17 34 27.8	+ 249.7	
	Moon II. u.	20.4	20 33 45.54	125° 82	63° 97	16 38 37.6	308.0	
	θ Capricorni	4	20 58 32.20			17 45		
	♄ Aquarii -	4½	21 2 24.68			S. 11 54		
13	θ Capricorni	4	20 58 32.23			S. 17 45		
	♄ Aquarii -	4½	21 2 24.71			11 54		
	Moon II.L.	- -	20 58 46.15	124° 30	63° 59	15 31 33.0	+ 362.1	
	Moon II. u.	21.4	21 23 29.48	122° 95	63° 24	14 14 2.7	412.2	
	μ Capricorni	5	21 46 6.31			14 10		
	♄ Aquarii -	4	21 59 18.64			S. 14 30		
14	μ Capricorni	5	21 46 6.34			S. 14 10		
	♄ Aquarii -	4	21 59 18.67			14 30		
	Moon II.L.	- -	21 47 57.88	121° 83	62° 94	12 46 56.8	+ 458.1	
	Moon II. u.	22.4	22 12 14.45	120° 99	62° 71	11 11 6.3	499.6	
	σ Aquarii -	4½	22 23 39.75			11 21		
	τ Aquarii -	4	22 42 36.16			S. 14 17		
15	σ Aquarii -	4½	22 23 39.78			S. 11 21		
	τ Aquarii -	4	22 42 36.19			14 17		
	Moon II.L.	- -	22 36 22.95	120° 49	62° 57	9 27 22.7	+ 536.9	
	Moon II. u.	23.5	23 0 27.69	120° 37	62° 52	7 36 39.1	569.6	
	φ Aquarii -	4½	23 7 29.25			6 46		
	ψ Aquarii -	4½	23 11 2.57			S. 9 54		
16	φ Aquarii -	4½	23 7 29.28			S. 6 46		
	ψ Aquarii -	4½	23 11 2.60			9 54		
	Moon II.L.	- -	23 24 33.46	120° 67	62° 57	5 39 51.1	+ 597.6	
	Moon II. u.	24.5	23 48 45.43	121° 40	62° 75	3 37 57.7	+ 620.4	
	33 Piscium -	5	23 58 34.57			S. 6 27		
	44 Piscium -	6	0 18 38.05			N. 1 13		

MOON-CULMINATING STARS, 1868. 405

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R. A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
			h m s	s	s	° ' "	"	
May 17	33 Piscium -	5	23 58 34.59			S. 6 27		
	44 Piscium -	6	0 18 38.07			N. 1 13		
	Moon II. L.	-	0 13 9.05	122.61	63.04	S. 1 32 3.5	+637.6	
	Moon II. U.	25.5	0 37 50.07	124.30	63.45	N. 0 36 40.7	648.6	
18	Moon II. L.	-	1 2 54.22	126.47	63.99	N. 2 46 54.9	+652.5	
	Moon II. U.	26.6	1 28 27.23	129.11	64.64	4 57 9.2	648.5	
19	Moon II. L.	-	1 54 34.58	132.19	65.41	N. 7 5 42.2	+635.5	
	Moon II. U.	27.6	2 21 21.23	135.65	66.27	9 10 40.7	612.5	
20	Moon II. L.	-	2 48 51.32	139.41	67.19	N. 11 9 59.4	+578.7	
	Moon II. U.	28.6	3 17 7.69	143.34	68.16	13 1 22.6	533.2	
21	Moon II. L.	-	3 46 11.59	147.30	69.12	N. 14 42 27.6	+475.6	
22	Moon I. U.	0.2	4 13 42.01	150.93	70.04	N. 16 10 50.0	+406.1	
	Moon I. L.	-	4 44 14.08	154.33	70.87	17 24 9.2	325.3	
23	Moon I. U.	1.3	5 15 23.64	157.14	71.55	N. 18 20 18.5	+234.7	
	Moon I. L.	-	5 47 2.19	159.14	72.03	18 57 33.0	136.6	
24	Moon I. U.	2.3	6 18 59.26	160.20	72.31	N. 19 14 38.2	+33.7	
	Moon I. L.	-	6 51 2.99	160.25	72.34	19 10 56.7	-70.6	
25	Moon I. U.	3.3	7 23 1.33	159.32	72.15	N. 18 46 29.9	-173.2	
	Moon I. L.	-	7 54 43.11	157.51	71.75	18 1 58.6	270.9	
μ ² Cancri -	-	5	7 59 59.44			21 58		
	ζ Cancri -	5½	8 4 38.22			N. 18 3		
26	μ ² Cancri -	5	7 59 59.43			N. 21 58		
	ζ Cancri -	5½	8 4 38.21			18 3		
	Moon I. U.	4.4	8 25 58.88	155.02	71.18	16 58 37.5	-361.1	
	Moon I. L.	-	8 56 41.59	152.04	70.49	15 38 9.2	441.9	
	δ Cancri -	4	8 37 10.81			18 38		
	α Cancri -	4	8 51 16.00			N. 12 22		
27	δ Cancri -	4	8 37 10.80			N. 18 38		
	α Cancri -	4	8 51 16.00			12 22		
	Moon I. U.	5.4	9 26 46.90	148.82	69.72	14 2 34.9	-511.9	
	Moon I. L.	-	9 56 13.04	145.55	68.94	12 14 8.0	570.6	
	ν Leonis -	5	9 51 7.50			13 4		
	α Leonis -	1½	10 1 20.75			N. 12 37		
28	ν Leonis -	5	9 51 7.49			N. 13 4		
	α Leonis -	1½	10 1 20.74			12 37		
	Moon I. U.	6.4	10 25 0.67	142.42	68.17	10 15 6.2	-617.8	
	Moon I. L.	-	10 53 12.20	139.56	67.46	8 7 47.3	653.5	
	c Leonis -	5	10 53 54.99			6 48		
	χ Leonis -	5	10 58 13.11			N. 8 3		
29	c Leonis -	5	10 53 54.98			N. 6 48		
	χ Leonis -	5	10 58 13.10			8 3		
	Moon I. U.	7.5	11 20 51.51	137.07	66.82	5 54 25.4	-678.3	
	Moon I. L.	-	11 48 3.45	135.00	66.29	3 37 9.3	-692.7	
	β Virginis -	3½	11 43 50.24			N. 2 30		

406. MOON-CULMINATING STARS, 1868.

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R. A. in 1 hour of Long.	Sidereal Time of C's Sem. per. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
			h m s	s	s	° ' "	"	
May 29	* Virginis *	4½	11 54 7.60			N. 7 21		
30	β Virginis -	3½	11 43 50.23			N. 2 30		
	* Virginis *	4½	11 54 7.59			7 21		
	Moon I. U.	8.5	12 14 53.36	133° 40	65° 86	N. 1 18	1.2 -697.1	
	Moon I. L.	-	12 41 26.78	132° 25	65° 55	S. 1 1	2.3 692.0	
	f Virginis -	6	12 30 0.92			5 6		
	γ Virginis -	2½	12 34 59.64			S. 0 44		
	31	f Virginis -	6	12 30 0.91			S. 5 6	
		γ Virginis -	2½	12 34 59.63			0 44	
		Moon I. U.	9.6	13 7 49.18	131° 55	65° 34	3 18 10.9	-678.0
		Moon I. L.	-	13 34 5.64	131° 26	65° 24	5 31 39.2	655.4
	α Virginis -	1	13 18 16.08			10 28		
	β Virginis -	5	13 25 8.01			S. 5 35		
June 1	α Virginis -	1	13 18 16.08			S. 10 28		
	β Virginis -	5	13 25 8.00			5 35		
	Moon I. U.	10.6	14 0 20.78	131° 32	65° 23	7 39 47.2	-624.7	
	Moon I. L.	-	14 26 38.35	131° 65	65° 29	9 41 0.2	586.3	
	κ Virginis -	4½	14 5 53.38			9 40		
	λ Virginis -	4½	14 12 0.21			S. 12 46		
	2	κ Virginis -	4½	14 5 53.38			S. 9 40	
		λ Virginis -	4½	14 12 0.20			12 46	
		Moon I. U.	11.6	14 53 1.34	132° 20	65° 41	11 33 48.5	-540.6
		Moon I. L.	-	15 19 31.68	132° 86	65° 55	13 16 48.5	488.3
	Librae -	4	15 20 51.19			16 15		
	γ Librae -	4½	15 28 10.86			S. 14 21		
	3	γ Librae -	4	15 20 51.20			S. 16 15	
		γ Librae -	4½	15 28 10.86			14 21	
		Moon I. U.	12.7	15 46 10.14	133° 54	65° 71	14 48 44.9	-430.1
		Moon I. L.	-	16 12 56.40	134° 15	65° 85	16 8 31.0	366.7
		Scorpii -	4	16 4 21.97			19 7	
		♂ Ophiuchi -	5	16 16 25.22			S. 19 44	
4	Scorpii -	4	16 4 21.98			S. 19 7		
	♂ Ophiuchi -	5	16 16 25.23			19 44		
	Moon I. U.	13.7	16 39 49.04	134° 59	65° 95	17 15 9.6	-299.1	
	η Ophiuchi -	2½	17 2 50.85			15 34		
	θ Ophiuchi -	3½	17 13 56.62			S. 24 52		
5	η Ophiuchi -	2½	17 2 50.85			S. 15 34		
	θ Ophiuchi -	3½	17 13 56.63			24 52		
	Moon II. L.	-	17 8 57.55	134° 79	66° 00	18 7 57.3	-228.4	
	Moon II. U.	14.8	17 35 54.61	134° 67	65° 98	18 46 23.4	155.7	
	μ Sagittarii	4	18 5 54.32			21 5		
	21 Sagittarii	5	18 17 31.50			S. 20 37		
6	μ Sagittarii	4	18 5 54.34			S. 21 5		
	21 Sagittarii	5	18 17 31.52			20 37		
	Moon II. L.	-	18 2 48.24	134° 21	65° 88	19 10 11.1	-82.2	
	Moon II. U.	15.8	18 29 34.36	133° 42	65° 70	S. 19 19 18.1	-9.1	

MOON-CULMINATING STARS, 1868. 407

		At Greenwich Transit.							
Month and Day.	Name.	Mag- nitude.	Apparent		Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
			Right Ascension in Time.						
			^h	^m ^s	^s	^s	[°] ['] ["]	["]	
June 6	♈ Sagittarii	4	18	56 48.38			S. 21 56		
	♊ Sagittarii	3	19	1 56.79			21 14		
7	♈ Sagittarii	4	18	56 48.40			S. 21 56		
	♊ Sagittarii	3	19	1 56.81			21 14		
	Moon II. L.	-	18	56 8.92	132.29	65.44	19 13 55.9	+ 62.5	
	Moon II. U.	16.8	19	22 28.32	130.90	65.10	18 54 27.8	131.7	
	♈ Sagittarii	5	19	34 59.96			16 26		
8	♈ Sagittarii	5	19	38 41.57			S. 20 4		
	♈ Sagittarii	5	19	34 59.99			S. 16 26		
	♈ Sagittarii	5	19	38 41.59			20 4		
	Moon II. L.	-	19	48 29.66	129.30	64.72	18 21 28.1	+ 197.6	
	Moon II. U.	17.9	20	14 10.90	127.56	64.31	17 35 39.5	259.8	
9	♈ Capricorni	5	20	21 21.28			18 15		
	♈ Capricorni	5	20	31 54.98			S. 15 25		
	♈ Capricorni	5	20	21 21.31			S. 18 15		
	♈ Capricorni	5	20	31 55.00			15 25		
	Moon II. L.	-	20	39 31.03	125.79	63.88	16 37 50.3	+ 317.7	
10	Moon II. U.	18.9	21	4 30.10	124.07	63.45	15 28 53.2	371.1	
	♈ Capricorni	3½	21	32 47.88			17 15		
	♈ Capricorni	3	21	39 46.42			S. 16 43		
	♈ Capricorni	3½	21	32 47.91			S. 17 15		
	♈ Capricorni	3	21	39 46.44			16 43		
11	Moon II. L.	-	21	29 9.19	122.48	63.06	14 9 42.9	+ 419.9	
	Moon II. U.	19.9	21	53 30.37	121.10	62.72	12 41 15.2	464.0	
	♈ Aquarii	4½	22	9 53.14			8 26		
	♈ Aquarii	4½	22	23 40.59			S. 11 21		
	♈ Aquarii	4½	22	9 53.17			S. 8 26		
12	♈ Aquarii	4½	22	23 40.62			11 21		
	Moon II. L.	-	22	17 36.57	119.99	62.44	11 4 25.5	+ 503.5	
	Moon II. U.	20.9	22	41 31.56	119.23	62.25	9 20 8.8	538.5	
	♈ Aquarii	4½	23	7 30.07			6 46		
	♈ Aquarii	5	23	12 6.40			S. 10 20		
13	♈ Aquarii	4½	23	7 30.10			S. 6 46		
	♈ Aquarii	5	23	12 6.43			10 20		
	Moon II. L.	-	23	5 19.73	118.86	62.16	7 29 20.6	+ 568.8	
	Moon II. U.	22.0	23	29 6.06	118.93	62.19	5 32 56.6	594.5	
	♈ Piscium	5	23	55 12.05			6 45		
14	♈ Piscium	5	23	58 35.35			S. 6 27		
	♈ Piscium	5	23	55 12.08			S. 6 45		
	♈ Piscium	5	23	58 35.38			6 27		
	Moon II. L.	-	23	52 56.08	119.48	62.33	3 31 53.3	+ 615.3	
	Moon II. U.	23.0	0	16 55.71	120.54	62.60	1 27 11.0	+ 630.9	
15	♈ Ceti	5½	0	28 27.69			4 19		
	♈ Ceti	5½	0	46 16.30			S. 1 52		
16	♈ Ceti	5½	0	28 27.72			S. 4 19		
	♈ Ceti	5½	0	46 16.33			S. 1 52		

408 MOON-CULMINATING STARS, 1868

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.				
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.
June 14	Moon II.L.	- -	^h ^m ^s 0 41 11.19	^s 122.13	^s 63.01	N. 0 40 5.5	+640.9
	Moon II.U.	24.0	1 5 49.01	124.27	63.57	2 48 44.7	644.6
	♊ Piscium *	4½	1 34 34.01			4 49	
	♊ Piscium *	4	1 38 25.87			N. 8 30	
15	♊ Piscium *	4½	1 34 34.04			N. 4 49	
	♊ Piscium *	4	1 38 25.90			8 30	
	Moon II.L.	- -	1 30 55.73	126.95	64.24	4 57 26.6	+641.2
	Moon II.U.	25.1	1 56 37.91	130.17	65.05	7 4 40.3	629.7
	♋ Ceti - - *	4	2 21 8.63			7 52	
	♋ Ceti - - *	4	2 37 48.58			N. 9 33	
16	♋ Ceti - - *	4	2 21 8.66			N. 7 52	
	♋ Ceti - - *	4	2 37 48.60			9 33	
	Moon II.L.	- -	2 23 1.71	133.88	65.97	9 8 42.1	+609.0
	Moon II.U.	26.1	2 50 12.65	138.01	66.99	N.11 7 35.4	578.0
17	Moon II.L.	- -	3 18 15.21	142.46	68.07	N.12 59 9.6	+535.6
	Moon II.U.	27.1	3 47 12.21	147.06	69.17	14 41 1.9	481.0
18	Moon II.L.	- -	4 17 4.33	151.60	70.25	N.16 10 42.0	+413.5
	Moon II.U.	28.2	4 47 49.41	155.84	71.25	17 25 37.1	333.6
19	Moon II.L.	- -	5 19 22.25	159.51	72.11	N.18 23 22.7	+242.2
	Moon II.U.	29.2	5 51 34.30	162.33	72.78	19 1 52.0	141.3
20	Moon I.L.	- -	6 21 47.65	164.05	73.20	N.19 19 27.7	+ 33.8
21	Moon I.U.	0.9	6 54 41.22	164.67	73.35	N.19 15 12.6	- 76.5
	Moon I.L.	- -	7 27 34.91	164.08	73.21	18 48 56.4	185.7
22	Moon I.U.	1.9	8 0 14.63	162.37	72.84	N.18 1 16.4	-289.8
	Moon I.L.	- -	8 32 28.05	159.73	72.24	16 53 34.5	385.5
23	Moon I.U.	3.0	9 4 5.56	156.43	71.48	N.15 27 48.4	-470.1
	Moon I.L.	- -	9 35 0.80	152.74	70.63	13 46 22.5	542.0
24	Moon I.U.	4.0	10 5 10.66	148.91	69.73	N.11 51 54.3	-600.4
	Moon I.L.	- -	10 34 34.90	145.17	68.84	9 47 6.6	645.3
	♌ Leonis - *	4	10 25 51.81			9 59	
	♌ Leonis - *	5	10 42 19.29			N.11 14	
25	♌ Leonis - *	4	10 25 51.80			N. 9 59	
	♌ Leonis - *	5	10 42 19.29			11 14	
	Moon I.U.	5.0	11 3 15.76	141.70	68.00	7 34 39.0	-677.2
	Moon I.L.	- -	11 31 17.19	138.62	67.25	5 17 3.2	696.8
	♍ Virginis *	4½	11 39 5.29			7 16	
	♍ Virginis -	3½	11 43 49.95			N. 2 30	
26	♍ Virginis *	4½	11 39 5.28			N. 7 16	
	♍ Virginis -	3½	11 43 49.94			2 30	
	Moon I.U.	6.1	11 58 44.37	136.00	66.60	2 56 39.9	-705.2
	Moon I.L.	- -	12 25 43.15	133.89	66.06	0 35 38.6	-703.4
	♎ Virginis -	3½	12 13 10.02			N. 0 4	
	♎ Virginis -	2½	12 34 59.37			S. 0 44	
27	♎ Virginis -	3½	12 13 10.01			N. 0 4	

MOON-CULMINATING STARS, 1868. 409

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
			h m s			° ' "		
June 27	γ ¹ Virginis -	2½	12 34 59.36			S. 0 44		
	Moon I. U.	7.1	12 52 19.66	132.28	65.65	1 44 4.0	-692.2	
	Moon I. L.	-	13 18 39.96	131.18	65.36	4 0 40.0	672.5	
	θ Virginis -	4½	13 3 8.24			4 50		
	α Virginis -	1	13 18 15.85			S. 10 28		
	28	θ Virginis -	4½	13 3 8.23			S. 4 50	
		α Virginis -	1	13 18 15.84			10 28	
		Moon I. U.	8.1	13 44 49.82	130.54	65.18	6 12 32.1	-645.0
		Moon I. L.	-	14 10 54.43	130.30	65.10	8 18 9.8	610.2
		κ Virginis -	4½	14 5 53.21			9 40	
29	λ Virginis -	4½	14 12 0.04			S. 12 46		
	κ Virginis -	4½	14 5 53.20			S. 9 40		
	λ Virginis -	4½	14 12 0.03			12 46		
	Moon I. U.	9.2	14 36 58.31	130.40	65.10	10 16 9.9	-568.8	
	Moon I. L.	-	15 3 5.11	130.77	65.17	12 5 15.1	521.1	
30	δ Libræ -	5	14 53 57.27			8 0		
	β Libræ -	2	15 9 56.29			S. 8 54		
	δ Libræ -	5	14 53 57.26			S. 8 0		
	β Libræ -	2	15 9 56.28			8 54		
	Moon I. U.	10.2	15 29 17.43	131.31	65.28	13 44 13.9	-467.8	
	Moon I. L.	-	15 55 36.86	131.93	65.41	15 12 2.0	409.4	
	48 Libræ -	4½	15 50 50.26			13 54		
	51 Libræ -	4½	15 57 8.90			S. 11 1		
	July 1	48 Libræ -	4½	15 50 50.26			S. 13 54	
		51 Libræ -	4½	15 57 8.89			11 1	
Moon I. U.		11.3	16 22 3.77	132.54	65.53	16 27 41.2	-346.4	
Moon I. L.		-	16 48 37.45	133.05	65.63	17 30 21.9	279.8	
B.A.C. 5579		5	16 33 58.89			17 29		
η Ophiuchi-		2½	17 2 51.04			S. 15 34		
2		B.A.C. 5579	5	16 33 58.89			S. 17 29	
		η Ophiuchi-	2½	17 2 51.04			15 34	
		Moon I. U.	12.3	17 15 16.08	133.35	65.69	18 19 24.4	-210.2
		Moon I. L.	-	17 41 56.91	133.40	65.68	18 54 20.2	138.8
	ξ Serpentis	3½	17 30 4.24			15 19		
3	58 Ophiuchi-	5	17 35 33.89			S. 21 37		
	ξ Serpentis	3½	17 30 4.25			S. 15 19		
	58 Ophiuchi -	5	17 35 33.89			21 37		
	Moon I. U.	13.4	18 8 36.44	133.14	65.59	19 14 52.6	-66.5	
	Moon I. L.	-	18 35 10.85	132.54	65.43	19 20 57.6	+ 5.5	
4	ζ Sagittarii	4	18 49 53.74			21 17		
	ο Sagittarii	4	18 56 48.85			S. 21 56		
	ζ Sagittarii	4	18 49 53.76			S. 21 17		
	ο Sagittarii	4	18 56 48.86			21 56		
	Moon I. U.	14.4	19 3 46.50	131.57	65.19	19 12 44.6	+ 76.3	
	ρ ¹ Sagittarii	4	19 14 3.37			18 6		
	σ ² Sagittarii	5	19 35 0.50			S. 16 26		

410 MOON-CULMINATING STARS, 1868.

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sideral Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
			h m s			° ' "		
July 5	ρ Sagittarii	4	19 14 3.38			S. 18 6		
	ϵ Sagittarii	5	19 35 0.51			16 26		
	Moon II. L.	-	19 29 58.24	130.34	64.88	18 50 35.0	+144.8	
	Moon II. U.	15.4	19 55 53.70	128.87	64.51	18 15 0.7	210.3	
	β Capricorni	3	20 13 37.91			15 12		
	ρ Capricorni	5	20 21 21.90			S. 18 15		
	β Capricorni	3	20 13 37.93			S. 15 12		
	ρ Capricorni	5	20 21 21.92			18 15		
	Moon II. L.	-	20 21 30.37	127.23	64.10	17 26 44.0	+271.8	
	Moon II. U.	16.5	20 46 46.74	125.50	63.67	16 26 34.0	329.1	
6	θ Capricorni	4	20 58 33.75			17 45		
	ι Capricorni	4½	21 14 55.81			S. 17 24		
	θ Capricorni	4	20 58 33.77			S. 17 45		
	ι Capricorni	4½	21 14 55.83			17 24		
	Moon II. L.	-	21 11 42.23	123.76	63.24	15 15 25.1	+381.6	
	Moon II. U.	17.5	21 36 17.38	122.11	62.83	13 54 15.2	429.2	
	ι Aquarii	4	21 59 20.27			14 30		
	θ Aquarii	4½	22 9 53.90			S. 8 26		
	ι Aquarii	4	21 59 20.30			S. 14 30		
	θ Aquarii	4½	22 9 53.92			8 26		
8	Moon II. L.	-	22 0 33.61	120.63	62.47	12 24 4.2	+471.8	
	Moon II. U.	18.5	22 24 33.38	119.38	62.17	10 45 52.4	509.4	
	λ Aquarii	4	22 45 45.28			8 17		
	δ Aquarii	6	22 58 18.69			S. 8 24		
	λ Aquarii	4	22 45 45.31			S. 8 17		
	δ Aquarii	6	22 58 18.72			8 24		
	Moon II. L.	-	22 48 19.89	118.43	61.94	9 0 39.6	+541.9	
	Moon II. U.	19.6	23 11 57.16	117.85	61.81	7 9 25.6	569.6	
	20 Piscium	6	23 41 10.84			3 30		
	27 Piscium	5½	23 51 56.33			S. 4 17		
10	20 Piscium	6	23 41 10.87			S. 3 30		
	27 Piscium	5½	23 51 56.36			4 17		
	Moon II. L.	-	23 35 29.80	117.67	61.78	5 13 9.5	+592.3	
	Moon II. U.	20.6	23 59 3.00	117.95	61.88	3 12 50.8	610.0	
	10 Ceti	6	0 19 52.62			0 47		
	13 Ceti	5½	0 28 28.52			S. 4 19		
	10 Ceti	6	0 19 52.64			S. 0 47		
	13 Ceti	5½	0 28 28.55			4 19		
	Moon II. L.	-	0 22 42.50	118.72	62.10	S. 1 9 30.4	+622.6	
	Moon II. U.	21.6	0 46 34.35	120.01	62.46	N. 0 55 48.7	629.7	
11	ζ Piscium *	4½	1 6 51.41			6 53		
	μ Piscium *	5	1 23 17.34			N. 5 28		
	ζ Piscium *	4½	1 6 51.44			N. 6 53		
	μ Piscium *	5	1 23 17.36			5 28		
	Moon II. L.	-	1 10 44.96	121.85	62.96	3 1 58.8	+631.0	
	Moon II. U.	22.6	1 35 20.99	124.25	63.59	5 7 46.3	+625.8	
	ξ Piscium	4	1 46 44.34			N. 2 32		

MOON-CULMINATING STARS, 1868. 41

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Declination.	Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.				
			h m s	s	s		° ' "		
July 12	♄ Ceti - - *	4½	2 6 1'22				N. 8 14		
13	♄ Piscium -	4	1 46 44'37				N. 2 32		
	♄ Ceti - - *	4½	2 6 1'25				8 14		
	Moon II. L.	- -	2 0 29'14	127'20	64'36		7 11 49'6	+613'5	
	Moon II. U.	23'7	2 26 16'06	130'70	65'25		9 12 37'2	593'0	
	μ Ceti - - *	4	2 37 49'37				9 33		
	λ Ceti - - *	5½	2 52 39'54				N. 8 23		
14	μ Ceti - - *	4	2 37 49'40				N. 9 33		
	λ Ceti - - *	5½	2 52 39'57				8 23		
	Moon II. L.	- -	2 52 48'03	134'70	66'26		11 8 25'2	+563'4	
	Moon II. U.	24'7	3 20 10'54	139'11	67'36		12 57 17'8	523'6	
	e Tauri - - *	5	3 41 2'64				10 44		
	λ Tauri - - *	3½	3 53 22'63				N. 12 7		
15	e Tauri - - *	5	3 41 2'67				N. 10 44		
	λ Tauri - - *	3½	3 53 22'66				12 7		
	Moon II. L.	- -	3 48 27'85	143'82	68'50		14 37 6'2	+472'5	
	Moon II. U.	25'7	4 17 42'56	148'64	69'65		N. 16 5 30'7	409'5	
16	Moon II. L.	- -	4 47 54'74	153'35	70'77		N. 17 20 5'6	+334'2	
	Moon II. U.	26'8	5 19 1'56	157'70	71'78		18 18 24'9	247'0	
17	Moon II. L.	- -	5 50 56'84	161'38	72'62		N. 18 58 12'2	+149'2	
	Moon II. U.	27'8	6 23 31'04	164'14	73'25		19 17 33'5	+43'1	
18	Moon II. L.	- -	6 56 31'77	165'77	73'61		N. 19 15 7'5	-68'0	
	Moon II. U.	28'9	7 29 44'66	166'16	73'70		18 50 16'9	180'2	
19	Moon I. L.	- -	8 0 27'73	165'37	73'51		N. 18 3 14'8	-289'2	
20	Moon I. U.	0'6	8 33 21'86	163'48	73'07		N. 16 55 4'4	-391'0	
	Moon I. L.	- -	9 5 47'68	160'70	72'42		15 27 34'5	481'9	
21	Moon I. U.	1'7	9 37 36'14	157'30	71'64		N. 13 43 11'4	-559'6	
	Moon I. L.	- -	10 8 41'62	153'58	70'77		11 44 43'6	622'5	
22	Moon I. U.	2'7	10 39 1'69	149'78	69'88		N. 9 35 12'5	-670'1	
	Moon I. L.	- -	11 8 36'76	146'11	69'02		7 17 40'7	702'7	
23	Moon I. U.	3'7	11 37 29'45	142'73	68'21		N. 4 55 3'1	-721'2	
	Moon I. L.	- -	12 5 43'94	139'76	67'50		2 30 3'1	726'7	
	π Virginis *	4½	11 54 7'04				7 21		
	c Virginis *	5	12 13 39'37				N. 4 3		
24	π Virginis *	4½	11 54 7'03				N. 7 21		
	c Virginis *	5	12 13 39'36				4 3		
	Moon I. U.	4'8	12 33 25'45	137'24	66'89		N. 0 5 7'9	-720'6	
	Moon I. L.	- -	13 0 39'67	135'21	66'40		S. 2 17 30'5	704'2	
	♂ Virginis -	5	12 47 30'40				8 49		
	♂ Virginis -	4½	13 3 7'93				S. 4 50		
25	♂ Virginis -	5	12 47 30'39				S. 8 49		
	♂ Virginis -	4½	13 3 7'92				4 50		
	Moon I. U.	5'8	13 27 32'44	133'66	66'02		4 35 56'1	-678'7	
	Moon I. L.	- -	13 54 9'37	132'57	65'75		S. 6 48 26'6	-645'2	

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Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
			h m s	"	"	° ' "	"	
July 25	κ Virginis -	4½	14 5 52.91			S. 9 40		
	λ Virginis -	4½	14 11 59.74			12 46		
26	κ Virginis -	4½	14 5 52.90			S. 9 40		
	λ Virginis -	4½	14 11 59.73			12 46		
	Moon I. U.	6.8	14 20 35.63	131.87	65.58	8 53 32.7	-604.7	
	Moon I. L.	-	14 46 55.77	131.53	65.49	10 49 55.3	558.1	
	α ^s Libræ - -	2½	14 43 36.39			15 30		
	δ Libræ - -	5	14 53 57.00			S. 8 0		
27	α ^s Libræ - -	2½	14 43 36.38			S. 15 30		
	δ Libræ - -	5	14 53 56.98			8 0		
	Moon I. U.	7.9	15 13 13.58	131.48	65.46	12 36 24.5	-506.0	
	Moon I. L.	-	15 39 31.91	131.61	65.47	14 11 59.2	449.1	
	θ Libræ - -	4½	15 46 20.90			16 20		
	48 Libræ - -	4½	15 50 50.05			S. 13 54		
28	θ Libræ - -	4½	15 46 20.88			S. 16 20		
	48 Libræ - -	4½	15 50 50.04			13 54		
	Moon I. U.	8.9	16 5 52.65	131.87	65.51	15 35 45.4	-388.0	
	Moon I. L.	-	16 32 16.64	132.14	65.56	16 46 56.5	323.4	
	φ Ophiuchi	5	16 23 37.55			16 19		
	B.A.C. 5579	5	16 33 58.74			S. 17 29		
29	φ Ophiuchi-	5	16 23 37.54			S. 16 19		
	B.A.C. 5579	5	16 33 58.73			17 29		
	Moon I. U.	9.9	16 58 43.78	132.37	65.58	17 44 55.1	-256.0	
	Moon I. L.	-	17 25 12.87	132.46	65.58	18 29 10.9	186.4	
	ξ Serpentis	3½	17 30 4.20			15 19		
	58 Ophiuchi -	5	17 35 33.86			S. 21 37		
30	ξ Serpentis	3½	17 30 4.19			S. 15 19		
	58 Ophiuchi-	5	17 35 33.85			21 37		
	Moon I. U.	11.0	17 51 42.00	132.36	65.51	18 59 23.5	-115.6	
	Moon I. L.	-	18 18 8.53	132.02	65.40	19 15 22.5	-44.3	
	μ ^s Sagittarii	4	18 5 54.70			21 5		
	21 Sagittarii	5	18 17 31.94			S. 20 37		
31	μ ^s Sagittarii	4	18 5 54.70			S. 21 5		
	21 Sagittarii	5	18 17 31.93			20 37		
	Moon I. U.	12.0	18 44 29.40	131.41	65.21	19 17 8.7	+ 26.5	
	Moon I. L.	-	19 10 41.39	130.54	64.95	19 4 52.9	95.9	
	d Sagittarii	5	19 9 57.35			19 11		
	ρ ^s Sagittarii	4	19 14 3.55			S. 18 6		
Aug. 1	d Sagittarii	5	19 9 57.35			S. 19 11		
	ρ ^s Sagittarii	4	19 14 3.55			18 6		
	Moon I. U.	13.0	19 36 41.36	129.42	64.64	18 38 56.8	+ 163.0	
	Moon I. L.	-	20 2 26.54	128.09	64.28	17 59 52.0	+ 227.2	
	β Capricorni	3	20 13 38.23			15 12		
	π Capricorni	5	20 19 48.52			S. 18 38		
2	β Capricorni	3	20 13 38.23			S. 15 12		
	π Capricorni	5	20 19 48.53			S. 18 38		

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
Aug. 2	Moon I. u.	14.1	h m s 20 27 54.72	s 126.60	s 63.88	° ' " S. 17 8 19.1	" +287.6	
	Moon I. L.	-	20 53 4.45	125.02	63.46	16 5 5.8	343.8	
	♄ Capricorni	4	20 58 34.17			17 45		
	♊ Aquarii -	4½	21 2 26.61			S. 11 54		
	♄ Capricorni	4	20 58 34.19			S. 17 45		
	♊ Aquarii -	4½	21 2 26.63			11 54		
	Moon II. u.	15.1	21 20 1.19	123.36	63.05	14 51 5.7	+395.4	
	♄ Capricorni	3	21 39 47.70			16 43		
	♊ Capricorni	5	21 46 8.44			S. 14 10		
	♄ Capricorni	3	21 39 47.71			S. 16 43		
3	♊ Capricorni	5	21 46 8.44			14 10		
	Moon II. L.	-	21 44 32.19	121.82	62.65	13 27 17.1	+441.9	
	Moon II. u.	16.1	22 8 45.52	120.43	62.29	11 54 41.1	483.2	
	♄ Aquarii -	4½	22 23 41.97			11 21		
	♊ Aquarii -	4	22 45 45.90			S. 8 17		
	♄ Aquarii -	4½	22 23 41.99			S. 11 21		
	♊ Aquarii -	4	22 45 45.91			8 17		
	Moon II. L.	-	22 32 43.18	119.22	61.99	10 14 20.8	+519.3	
	Moon II. u.	17.2	22 56 27.88	118.28	61.76	8 27 19.4	550.0	
	♄ Aquarii -	4½	23 7 31.54			6 46		
4	♊ Aquarii -	4½	23 11 4.89			S. 9 54		
	♄ Aquarii -	4½	23 7 31.56			S. 6 46		
	♊ Aquarii -	4½	23 11 4.91			9 54		
	Moon II. L.	-	23 20 3.07	117.65	61.61	6 34 41.2	+575.4	
	Moon II. u.	18.2	23 43 32.76	117.37	61.57	4 37 30.8	595.4	
	♄ Piscium -	5	23 55 13.62			6 45		
	♊ Piscium -	5	23 58 36.92			S. 6 27		
	♄ Piscium -	5	23 55 13.64			S. 6 45		
	♊ Piscium -	5	23 58 36.94			6 27		
	Moon II. L.	-	0 7 1.53	117.50	61.63	2 36 52.5	+610.1	
5	Moon II. u.	19.2	0 30 34.44	118.06	61.81	S. 0 33 51.6	619.2	
	♄ Piscium *	4½	0 41 52.26			N. 6 52		
	♊ Piscium *	4½	1 6 52.19			N. 6 53		
	♄ Piscium *	4½	0 41 52.28			N. 6 52		
	♊ Piscium *	4½	1 6 52.21			6 53		
	Moon II. L.	-	0 54 16.91	119.10	62.12	1 30 24.5	+622.6	
	Moon II. u.	20.3	1 18 14.71	120.62	62.56	3 34 46.8	620.1	
	♄ Piscium *	4	1 38 27.51			8 30		
	♊ Piscium -	4	1 46 45.14			N. 2 32		
	♄ Piscium *	4	1 38 27.53			N. 8 30		
6	♊ Piscium -	4	1 46 45.16			2 32		
	Moon II. L.	-	1 42 33.86	122.65	63.12	5 38 1.2	+611.2	
	Moon II. u.	21.3	2 7 20.44	125.20	63.81	7 38 49.0	+595.5	
	♄ Ceti - - *	4	2 21 10.25			7 52		
	♊ Ceti - - *	4	2 37 50.19			N. 9 33		
	♄ Ceti - - *	4	2 21 10.28			N. 7 52		
	♊ Ceti - - *	4	2 21 10.28			N. 7 52		
	♄ Ceti - - *	4	2 21 10.28			N. 7 52		
	♊ Ceti - - *	4	2 21 10.28			N. 7 52		
	♄ Ceti - - *	4	2 21 10.28			N. 7 52		

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Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
Aug. 10	μ Ceti - - *	4	h m s			N. 9 33		
	Moon II.L.	- -	2 37 50.22			9 35 44.1	+572.4	
	Moon II.U.	22.3	2 32 40.61	128.25	64.62	11 27 12.9	541.0	
	f Tauri - - *	4	2 58 40.18	131.76	65.53	12 29		
	e Tauri - - *	5	3 23 36.84			N.10 44		
	11	f Tauri - - *	4	3 41 3.44			N.12 29	
		e Tauri - - *	5	3 23 36.87			10 44	
		Moon II.L.	- -	3 41 3.46			13 11 31.5	+500.6
		Moon II.U.	23.4	3 25 24.51	135.69	66.54	14 46 47.6	450.4
		s Tauri - -	3½	3 52 58.05	139.95	67.60	18 53	
12	a Tauri - -	I	4 20 55.84			N.16 14		
	s Tauri - -	3½	4 28 22.04			N.18 53		
	a Tauri - -	I	4 20 55.87			16 14		
	Moon II.L.	- -	4 28 22.07			16 10 59.6	+389.8	
	Moon II.U.	24.4	4 21 23.95	144.39	68.69	17 21 59.8	318.4	
13	11 Orionis -	5	4 50 43.52	148.86	69.78	15 13		
	ζ Tauri - -	3½	4 57 2.70			N.21 4		
	11 Orionis -	5	5 29 46.35			N.15 13		
	ζ Tauri - -	3½	4 57 2.73			21 4		
	Moon II.L.	- -	5 29 46.38			18 17 39.4	+236.4	
14	Moon II.U.	25.4	5 20 55.72	153.13	70.79	N.18 55.54.3	144.5	
	Moon II.L.	- -	5 51 56.89	156.98	71.68	N.19 14 53.7	+44.2	
	Moon II.U.	26.5	6 23 40.42	160.15	72.40	19 13 11.4	-62.0	
	Moon II.L.	- -	6 55 56.98	162.45	72.92	N.18 49 54.2	-171.0	
	Moon II.U.	27.5	7 28 35.10	163.73	73.19	18 4 51.7	279.0	
15	Moon II.L.	- -	8 1 22.13	163.93	73.22	N.16 58 38.2	-382.1	
	Moon II.U.	28.5	8 34 5.28	163.10	73.01	15 32 35.4	476.6	
	Moon II.L.	- -	9 6 32.85	161.37	72.59	N.13 48 45.0	-559.5	
	Moon II.U.	29.5	9 38 35.26	158.94	72.02	N.11 49 42.5	-628.4	
	Moon I.U.	0.3	10 7 42.83	156.17	71.33	9 38 24.0	682.0	
16	Moon I.L.	- -	10 38 38.21	153.04	70.60	N. 7 17 58.3	-719.6	
	Moon I.U.	1.3	11 8 55.70	149.88	69.84	4 51 34.4	741.8	
	Moon I.L.	- -	11 38 35.92	146.85	69.13	N. 2 22 15.0	-749.1	
	Moon I.U.	2.4	12 7 41.22	144.08	68.48	S. 0 7 9.8	742.9	
	Moon I.L.	- -	12 36 15.15	141.64	67.90	S. 2 34 6.3	-724.6	
17	Moon I.U.	3.4	13 4 21.98	139.57	67.41	4 56 18.4	695.7	
	Moon I.L.	- -	13 32 6.29	137.88	67.02	10 28		
	a Virginis -	I	13 18 15.21			S. 5 35		
	b Virginis -	5	13 25 7.15			S.10 28		
	a Virginis -	I	13 18 15.20			5 35		
18	b Virginis -	5	13 25 7.15			7 11 47.4	-657.7	
	Moon I.U.	4.4	13 59 32.59	136.56	66.72	9 18 51.7	-611.9	
	Moon I.L.	- -	14 26 45.15	135.58	66.50	12 46		
	λ Virginis -	4½	14 11 59.35			S.15 29		
	α Libræ - -	2½	14 43 35.99					

MOON-CULMINATING STARS, 1868. 41.

At Greenwich Transit.

Month and Day.	Name.	Mag- nitude.	Apparent Right Ascension in Time.			Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.
			h	m	s				
Aug. 23	λ Virginis -	4½	14	11	59.34			S. 12° 46'	
	α^s Libræ - -	2½	14	43	35.98			15 29	
	Moon I. U.	5.5	14	53	47.68	134.88	66.34	11 16 6.1	-559.5
	Moon I. L.	- -	15	20	43.23	134.41	66.23	13 2 18.4	501.7
	ζ^s Libræ - -	4	15	20	50.49			16 15	
	γ Libræ - -	4½	15	28	10.19			S. 14 21	
	ζ^s Libræ - -	4	15	20	50.48			S. 16 15	
	γ Libræ - -	4½	15	28	10.17			14 21	
	Moon I. U.	6.5	15	47	34.10	134.09	66.16	14 36 29.7	-439.5
	Moon I. L.	- -	16	14	21.71	133.86	66.10	15 57 51.8	373.7
24	β^s Scorpii - -	2	15	57	47.57			19 26	
	ν Scorpii - -	4	16	4	21.42			S. 19 7	
	β^s Scorpii - -	2	15	57	47.55			S. 19 26	
	ν Scorpii - -	4	16	4	21.40			19 7	
	Moon I. U.	7.5	16	41	6.75	133.65	66.04	17 5 47.9	-305.2
	Moon I. L.	- -	17	7	48.97	133.38	65.96	17 59 50.1	234.9
	η Ophiuchi-	2½	17	2	50.59			15 34	
	ν Serpentis	4½	17	13	26.25			S. 12 43	
	η Ophiuchi-	2½	17	2	50.57			S. 15 34	
	ν Serpentis	4½	17	13	26.23			12 43	
25	Moon I. U.	8.6	17	34	27.44	133.01	65.85	18 39 40.3	-163.4
	Moon I. L.	- -	18	1	0.66	132.50	65.69	19 5 9.7	91.5
	μ^s Sagittarii	4	18	5	54.43			21 5	
	α^s Sagittarii	5	18	17	31.68			S. 20 37	
	μ^s Sagittarii	4	18	5	54.41			S. 21 5	
	α^s Sagittarii	5	18	17	31.67			20 37	
	Moon I. U.	9.6	18	27	26.65	131.80	65.48	19 16 18.4	-20.1
	Moon I. L.	- -	18	53	43.22	130.93	65.22	19 13 16.0	+50.2
	ξ^s Sagittarii	4	18	49	53.68			21 17	
	ϕ Sagittarii	4	18	56	48.81			S. 21 56	
26	ξ^s Sagittarii	4	18	49	53.66			S. 21 17	
	ϕ Sagittarii	4	18	56	48.80			21 56	
	Moon I. U.	10.6	19	19	48.08	129.86	64.91	18 56 20.6	+118.7
	Moon I. L.	- -	19	45	39.17	128.63	64.55	18 25 58.3	184.6
	e^s Sagittarii	5	19	35	0.62			16 26	
	f Sagittarii	5	19	38	42.27			S. 20 4	
	e^s Sagittarii	5	19	35	0.61			S. 16 26	
	f Sagittarii	5	19	38	42.26			20 4	
	Moon I. U.	11.7	20	11	14.73	127.28	64.17	17 42 43.5	+247.3
	Moon I. L.	- -	20	36	33.51	125.85	63.76	16 47 16.9	306.5
27	π Capricorni	5	20	19	48.51			18 38	
	τ^s Capricorni	5	20	31	56.00			S. 15 25	
	π Capricorni	5	20	19	48.51			S. 18 38	
	τ^s Capricorni	5	20	31	55.99			15 25	
	Moon I. U.	12.7	21	1	34.86	124.38	63.35	15 40 25.3	+361.4
	Moon I. L.	- -	21	26	18.74	122.95	62.95	14 23 1.2	+411.8
	γ Capricorni	3½	21	32	49.30			S. 17 15	

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Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
Aug. 30	♄ Capricorni	3	^h 21 ^m 39 ^s 47.88	"	"	S. 16 43	"	
31	γ Capricorni	3½	21 32 49.30			S. 17 15		
	♄ Capricorni	3	21 39 47.88			16 43		
	Moon I. U.	13.7	21 50 45.90	121.60	62.57	12 56 1.1	+457.4	
	Moon I. L.	-	22 14 57.67	120.39	62.24	11 20 24.6	497.8	
	♈ Aquarii -	4½	22 9 54.71			8 26		
	♈ Aquarii -	4½	22 23 42.25			S. 11 21		
Sept. 1	♈ Aquarii -	4½	22 9 54.71			S. 8 26		
	♈ Aquarii -	4½	22 23 42.25			11 21		
	Moon I. U.	14.8	22 38 56.11	119.38	61.97	9 37 14.2	+533.0	
	♈ Aquarii -	4½	23 7 31.92			6 46		
	♈ Aquarii -	4½	23 11 5.27			S. 9 54		
	2	♈ Aquarii -	4½	23 7 31.92			S. 6 46	
		♈ Aquarii -	4½	23 11 5.27			9 54	
		Moon II. L.	-	23 4 47.35	118.59	61.77	7 47 34.7	+562.7
		Moon II. U.	15.8	23 28 27.26	118.12	61.65	5 52 32.7	586.7
	30	Piscium -	5	23 55 14.10			6 45	
	33	Piscium -	5	23 58 37.39			S. 6 27	
	3	30 Piscium -	5	23 55 14.10			S. 6 45	
33 Piscium -		5	23 58 37.40			6 27		
Moon II. L.		-	23 52 3.45	117.97	61.62	3 53 15.8	+605.1	
Moon II. U.		16.8	0 15 40.00	118.18	61.70	1 50 54.5	617.5	
12 Ceti - - -		6	0 23 20.73			4 41		
13 Ceti - - -		5½	0 28 29.82			S. 4 19		
4	12 Ceti - - -	6	0 23 20.75			S. 4 41		
	13 Ceti - - -	5½	0 28 29.83			S. 4 19		
	Moon II. L.	-	0 39 21.35	118.78	61.87	N. 0 13 20.5	+623.9	
	Moon II. U.	17.9	1 3 12.24	119.78	62.17	2 18 14.9	624.1	
	♊ Piscium *	5	1 23 18.78			5 28		
	♊ Piscium *	4½	1 34 36.28			N. 4 49		
5	♊ Piscium *	5	1 23 18.80			N. 5 28		
	♊ Piscium *	4½	1 34 36.30			4 49		
	Moon II. L.	-	1 27 17.65	121.20	62.58	4 22 32.7	+617.8	
	Moon II. U.	18.9	1 51 42.60	123.04	63.10	6 24 54.2	604.7	
	♌ Ceti - - *	4½	2 6 2.74			8 14		
	♌ Ceti - - *	4	2 21 10.96			N. 7 52		
6	♌ Ceti - - *	4½	2 6 2.77			N. 8 14		
	♌ Ceti - - *	4	2 21 10.98			7 52		
	Moon II. L.	-	2 16 32.22	125.30	63.73	8 23 56.2	+584.4	
	Moon II. U.	19.9	2 41 51.55	127.98	64.46	10 18 10.2	556.6	
	♍ Tauri - *	3½	3 20 3.24			9 16		
	♍ Tauri - *	4	3 23 37.61			N. 12 29		
7	♍ Tauri - *	3½	3 20 3.27			N. 9 16		
	♍ Tauri - *	4	3 23 37.64			12 29		
	Moon II. L.	-	3 7 45.26	131.03	65.27	12 6 3.2	+520.8	
	Moon II. U.	21.0	3 34 17.54	134.40	66.16	N. 13 45 56.4	+476.6	

MOON-CULMINATING STARS, 1868. 41

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.						Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.			
			h m s	s	s	° ' "			
Sept. 7	λ Tauri - *	3½	3 53 24.24			N. 12 7			
	γ Tauri - -	4	4 12 19.09			15 18			
8	λ Tauri - *	3½	3 53 24.27			N. 12 7			
	γ Tauri - -	4	4 12 19.12			15 18			
	Moon II. L.	- -	4 1 31.73	138.00	67.09	15 16 5.9	+423.5		
	Moon II. U.	22.0	4 29 30.09	141.74	68.05	16 34 44.0	361.3		
	α Orionis *	5	4 48 58.95			13 18			
	II Orionis -	5	4 57 3.50			N. 15 13			
9	α Orionis *	5	4 48 58.98			N. 13 18			
	II Orionis -	5	4 57 3.53			15 13			
	Moon II. L.	- -	4 58 13.35	145.46	68.97	17 40 1.3	+290.0		
	Moon II. U.	23.0	5 27 40.55	149.03	69.85	18 30 9.7	209.9		
	χ Orionis -	5	5 56 6.45			20 8			
	η Geminor.	3½	6 6 56.06			N. 22 33			
10	χ Orionis -	5	5 56 6.48			N. 20 8			
	η Geminor.	3½	6 6 56.09			22 33			
	Moon II. L.	- -	5 57 48.62	152.25	70.63	19 3 27.4	+121.8		
	Moon II. U.	24.1	6 28 32.51	154.97	71.27	19 18 25.4	+26.9		
	ζ Geminor.	4	6 56 17.94			20 46			
	λ Geminor.	3½	7 10 31.51			N. 16 47			
11	ζ Geminor.	4	6 56 17.97			N. 20 46			
	λ Geminor.	3½	7 10 31.54			16 47			
	Moon II. L.	- -	6 59 45.25	157.03	71.74	19 13 53.2	-72.9		
	Moon II. U.	25.1	7 31 18.26	158.34	72.03	18 49 6.7	175.1		
	μ Canceri -	5	8 0 0.50			21 58			
	ζ Canceri -	5½	8 4 39.21			N. 18 3			
12	μ Canceri -	5	8 0 0.53			N. 21 58			
	ζ Canceri -	5½	8 4 39.24			18 3			
	Moon II. L.	- -	8 3 2.17	158.85	72.12	18 3 53.0	-276.9		
	Moon II. U.	26.1	8 34 47.46	158.58	72.03	N. 16 58 35.4	375.2		
13	Moon II. L.	- -	9 6 25.27	157.62	71.77	N. 15 34 13.6	-467.1		
	Moon II. U.	27.2	9 37 48.14	156.11	71.39	13 52 22.9	549.6		
14	Moon II. L.	- -	10 8 50.35	154.21	70.91	N. 11 55 9.9	-620.4		
	Moon II. U.	28.2	10 39 28.19	152.08	70.39	9 45 6.0	677.8		
15	Moon II. L.	- -	11 9 39.92	149.88	69.84	N. 7 25 1.0	-720.5		
	Moon I. U.	29.3	11 37 6.89	147.83	69.32	4 57 53.7	748.1		
16	Moon I. L.	- -	12 6 28.67	145.84	68.84	N. 2 26 46.3	-760.6		
17	Moon I. U.	1.0	12 35 27.93	144.08	68.42	S. 0 5 23.4	-758.6		
	Moon I. L.	- -	13 4 7.50	142.57	68.06	2 35 46.8	743.1		
18	Moon I. U.	2.0	13 32 30.55	141.32	67.78	S. 5 1 48.5	-715.3		
	Moon I. L.	- -	14 0 40.12	140.32	67.55	7 21 9.3	676.5		
19	Moon I. U.	3.0	14 28 38.94	139.52	67.39	S. 9 31 47.4	-628.4		
	Moon I. L.	- -	14 56 29.25	138.89	67.27	11 31 59.1	572.4		

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
Sept. 20	Moon I. L.	- -	h m s 15 51 49.95	137.86	67.07	S. 14 55 38.2	-442.6	
	♄ Libræ - -	4½	15 46 20.04			16 20		
	48 Libræ - -	4½	15 50 49.20			S. 13 54		
21	♄ Libræ - -	4½	15 46 20.02			S. 16 20		
	48 Libræ - -	4½	15 50 49.18			13 54		
	Moon I. U.	5.1	16 19 21.29	137.35	66.96	16 17 5.1	-371.4	
	Moon I. L.	- -	16 46 46.04	136.76	66.84	17 24 2.6	297.9	
	B.A.C. 5579	5	16 33 57.87			17 29		
	♄ Ophiuchi-	2½	17 2 50.11			S. 15 34		
22	B.A.C. 5579	5	16 33 57.86			S. 17 29		
	♄ Ophiuchi-	2½	17 2 50.09			15 34		
	Moon I. U.	6.2	17 14 3.07	136.05	66.67	18 16 8.3	-222.9	
	Moon I. L.	- -	17 41 10.70	135.19	66.46	18 53 11.6	147.6	
	ξ Serpentis	3½	17 30 3.39			15 19		
	58 Ophiuchi-	5	17 35 33.03			S. 21 37		
23	ξ Serpentis	3½	17 30 3.37			S. 15 19		
	58 Ophiuchi-	5	17 35 33.01			21 37		
	Moon I. U.	7.2	18 8 7.00	134.16	66.20	19 15 13.9	- 72.9	
	Moon I. L.	- -	18 34 49.90	132.96	65.89	19 22 27.5	+ 0.4	
	λ Sagittarii	3	18 19 51.50			25 29		
	♄ Sagittarii	4	18 49 53.24			S. 21 17		
24	λ Sagittarii	3	18 19 51.48			S. 25 29		
	♄ Sagittarii	4	18 49 53.22			21 17		
	Moon I. U.	8.2	19 1 17.47	131.61	65.53	19 15 12.5	+ 71.7	
	Moon I. L.	- -	19 27 28.00	130.13	65.13	18 53 57.9	140.3	
	ρ ¹ Sagittarii	4	19 14 2.98			18 6		
	ε ¹ Sagittarii	5	19 35 0.24			S. 16 26		
25	ρ ¹ Sagittarii	4	19 14 2.96			S. 18 6		
	ε ¹ Sagittarii	5	19 35 0.23			16 26		
	Moon I. U.	9.3	19 53 20.21	128.56	64.69	18 19 18.6	+205.7	
	Moon I. L.	- -	20 18 53.39	126.96	64.25	17 31 55.4	267.5	
	ρ Capricorni	5	20 21 21.95			18 15		
	τ ¹ Capricorni	5	20 31 55.72			S. 15 25		
26	ρ Capricorni	5	20 21 21.94			S. 18 15		
	τ ¹ Capricorni	5	20 31 55.71			15 25		
	Moon I. U.	10.3	20 44 7.34	125.37	63.80	16 32 33.2	+325.5	
	Moon I. L.	- -	21 9 2.55	123.85	63.36	15 22 1.1	379.2	
	♄ Aquarii -	4½	21 2 26.48			11 54		
	♄ Capricorni	4½	21 14 56.19			S. 17 24		
27	♄ Aquarii -	4½	21 2 26.47			S. 11 54		
	♄ Capricorni	4½	21 14 56.18			17 24		
	Moon I. U.	11.3	21 33 40.11	122.44	62.96	14 1 11.0	+428.4	
	Moon I. L.	- -	21 58 1.71	121.20	62.60	12 30 57.7	+473.0	
	μ Capricorni	5	21 46 8.50			14 10		
	♄ Aquarii -	4	21 59 20.95			S. 14 30		
28	μ Capricorni	5	21 46 8.49			S. 14 10		

MOON-CULMINATING STARS, 1868. 41

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
			h m s	s	s	° ' "	"	
Sept. 28	♈ Aquarii -	4	21 59 20.94			S. 14 30		
	Moon I. U.	12.4	22 22 9.59	120.16	62.29	10 52 18.8	+512.7	
	Moon I. L.	-	22 46 6.46	119.37	62.05	9 6 13.8	547.3	
	♈ Aquarii -	5	22 30 57.84			4 54		
	♈ Aquarii -	4	22 45 46.24			S. 8 17		
	29	♈ Aquarii -	5	22 30 57.83			S. 4 54	
		♈ Aquarii -	4	22 45 46.23			8 17	
		Moon I. U.	13.4	23 9 55.53	118.86	61.89	7 13 45.5	+576.6
		Moon I. L.	-	23 33 40.38	118.67	61.82	5 15 58.9	600.3
		20 Piscium -	6	23 41 12.13			3 30	
30	27 Piscium -	5½	23 51 57.70			S. 4 17		
	20 Piscium -	6	23 41 12.13			S. 3 30		
	27 Piscium -	5½	23 51 57.70			4 17		
	Moon I. U.	14.4	23 57 24.87	118.81	61.85	3 14 2.7	+618.1	
	Moon I. L.	-	0 21 13.16	119.30	61.98	S. 1 9 8.3	629.9	
	44 Piscium -	6	0 18 41.15			N. 1 13		
	13 Ceti - - -	5½	0 28 30.08			S. 4 19		
	Oct. 1	44 Piscium -	6	0 18 41.16			N. 1 13	
		13 Ceti - - -	5½	0 28 30.08			S. 4 19	
		Moon II. U.	15.5	0 47 14.02	120.21	62.21	N. 0 57 28.3	+635.1
ζ Piscium *		4½	1 6 53.16			6 53		
μ Piscium *		5	1 23 19.17			N. 5 28		
2		ζ Piscium *	4½	1 6 53.17			N. 6 53	
		μ Piscium *	5	1 23 19.18			5 28	
		Moon II. L.	-	1 11 23.75	121.47	62.55	3 4 27.6	+633.6
		Moon II. U.	16.5	1 35 50.82	123.10	63.00	5 10 25.6	624.8
		ξ Piscium -	4	1 46 46.26			2 32	
3	ξ Ceti - - -	4½	2 6 3.24			N. 8 14		
	ξ Piscium -	4	1 46 46.27			N. 2 32		
	ξ Ceti - - -	4½	2 6 3.25			8 14		
	Moon II. L.	-	2 0 39.67	125.10	63.54	7 13 53.5	+608.5	
	Moon II. U.	17.5	2 25 54.57	127.44	64.18	9 13 18.0	584.2	
	38 Arietis - *	5	2 37 49.20			11 53		
	λ Ceti - - -	5½	2 52 41.70			N. 8 23		
	4	38 Arietis - *	5	2 37 49.22			N. 11 53	
		λ Ceti - - -	5½	2 52 41.72			8 23	
		Moon II. L.	-	2 51 39.40	130.08	64.89	11 7 1.9	+551.7
Moon II. U.		18.5	3 17 57.53	132.98	65.66	12 53 23.7	510.5	
e Tauri - *		5	3 41 4.91			10 44		
5	λ Tauri - *	3½	3 53 24.93			N. 12 7		
	e Tauri - *	5	3 41 4.93			N. 10 44		
	λ Tauri - *	3½	3 53 24.95			12 7		
	Moon II. L.	-	3 44 51.56	136.05	66.48	14 30 39.5	+460.6	
	Moon II. U.	19.6	4 12 23.09	139.21	67.31	15 57 3.6	+401.9	
	θ Tauri - -	4½	4 21 10.49			15 35		
	α Tauri - -	1	4 28 23.63			N. 16 15		

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Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
Oct. 6	θ° Tauri - -	4½	h m s 4 21 10.51			N. 15 35		
	α Tauri - -	1	4 28 23.65			16 15		
	Moon II. L.	- -	4 40 32.46	142° 34	68° 12	17 10 51.7		+ 334.7
	Moon II. U.	20.6	5 9 18.58	145° 31	68° 89	18 10 23.6		259.3
	ζ Tauri - -	3½	5 29 48.01			21 4		
	χ° Orionis -	4½	5 46 36.36			N. 20 15		
	ζ Tauri - -	3½	5 29 48.04			N. 21 4		
	χ° Orionis -	4½	5 46 36.38			20 15		
	Moon II. L.	- -	5 38 38.79	148° 00	69° 58	18 54 6.2		+ 176.6
	Moon II. U.	21.7	6 8 28.84	150° 27	70° 15	19 20 38.8		+ 87.8
7	γ Geminor.	2½	6 30 7.26			16 30		
	ζ Geminor.	4	6 56 18.75			N. 20 46		
	γ Geminor.	2½	6 30 7.29			N. 16 30		
	ζ Geminor.	4	6 56 18.78			20 46		
	Moon II. L.	- -	6 38 43.08	152° 01	70° 59	19 28 56.3		- 5.6
	Moon II. U.	22.7	7 9 14.74	153° 16	70° 87	19 18 14.9		101.7
	κ Geminor.	3½	7 36 30.29			24 43		
	μ° Cancri - -	5	8 0 1.26			N. 21 58		
	κ Geminor.	3½	7 36 30.32			N. 24 43		
	μ° Cancri - -	5	8 0 1.29			21 58		
9	Moon II. L.	- -	7 39 56.43	153° 68	71° 00	18 48 14.4		- 198.3
	Moon II. U.	23.7	8 10 40.72	153° 60	70° 97	17 59 1.8		293.3
	δ Cancri - -	4	8 37 12.22			18 38		
	α Cancri - *	4	8 51 17.20			N. 12 22		
	δ Cancri - -	4	8 37 12.25			N. 18 38		
	α Cancri - *	4	8 51 17.23			12 22		
	Moon II. L.	- -	8 41 20.69	152° 98	70° 81	16 51 11.1		- 384.3
	Moon II. U.	24.8	9 11 50.53	151° 93	70° 53	15 25 44.2		469.0
	ν Leonis - *	5	9 51 8.09			13 4		
	α Leonis - *	1½	10 1 21.21			N. 12 37		
11	ν Leonis - *	5	9 51 8.11			N. 13 4		
	α Leonis - *	1½	10 1 21.24			12 37		
	Moon II. L.	- -	9 42 5.70	150° 56	70° 18	13 44 8.1		- 545.5
	Moon II. U.	25.8	10 12 3.32	149° 03	69° 77	N. 11 48 11.9		612.0
	Moon II. L.	- -	10 41 42.13	147° 44	69° 35	N. 9 40 4.3		- 667.2
	Moon II. U.	26.8	11 11 2.20	145° 93	68° 95	7 22 8.2		709.9
	Moon II. L.	- -	11 40 4.92	144° 56	68° 59	N. 4 56 58.1		- 739.5
	Moon II. U.	27.9	12 8 52.44	143° 40	68° 28	N. 2 27 14.3		755.5
	Moon II. L.	- -	12 37 27.62	142° 50	68° 04	S. 0 4 20.1		- 758.0
	Moon II. U.	28.9	13 5 53.39	141° 84	67° 87	2 35 3.6		747.1
15	Moon I. L.	- -	13 31 57.20	141° 43	67° 76	S. 5 2 19.7		- 723.6
	Moon I. U.	0.6	14 0 12.74	141° 19	67° 71	S. 7 23 42.0		- 688.2
	Moon I. L.	- -	14 28 26.27	141° 08	67° 70	9 36 54.5		642.2
	Moon I. U.	1.6	14 56 39.02	141° 05	67° 71	S. 11 39 56.6		- 586.7
	Moon I. L.	- -	15 24 51.28	140° 99	67° 72	S. 13 31 4.4		- 523.4
	Moon I. U.	1.6	14 56 39.02	141° 05	67° 71	S. 11 39 56.6		- 586.7
	Moon I. L.	- -	15 24 51.28	140° 99	67° 72	S. 13 31 4.4		- 523.4
	Moon I. U.	1.6	14 56 39.02	141° 05	67° 71	S. 11 39 56.6		- 586.7
	Moon I. L.	- -	15 24 51.28	140° 99	67° 72	S. 13 31 4.4		- 523.4
	Moon I. U.	1.6	14 56 39.02	141° 05	67° 71	S. 11 39 56.6		- 586.7
	Moon I. L.	- -	15 24 51.28	140° 99	67° 72	S. 13 31 4.4		- 523.4

MOON-CULMINATING STARS, 1868. 42

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
Oct. 18	Moon I. U.	2.6	^h 15 ^m 53 ^s 2.47	^s 140.85	^s 67.71	S. 15° 8' 51.9"	-453.6	
	Moon I. L.	-	16 21 11.04	140.55	67.67	16 32 12.0	379.1	
19	Moon I. U.	3.7	16 49 14.66	140.02	67.57	S. 17 40 17.3	-301.4	
	Moon I. L.	-	17 17 10.36	139.22	67.41	18 32 38.9	222.0	
	ξ Ophiuchi-	5	17 13 6.90			20 58		
	ξ Serpentis	3½	17 30 2.94			S. 15 19		
20	ξ Ophiuchi-	5	17 13 6.89			S. 20 58		
	ξ Serpentis	3½	17 30 2.92			15 19		
	Moon I. U.	4.7	17 44 54.87	138.15	67.17	19 9 5.2	-142.4	
	Moon I. L.	-	18 12 24.82	136.80	66.85	19 29 40.9	-63.8	
	μ ¹ Sagittarii	4	18 5 53.45			21 5		
	21 Sagittarii	5	18 17 30.71			S. 20 37		
21	μ ¹ Sagittarii	4	18 5 53.44			S. 21 5		
	21 Sagittarii	5	18 17 30.69			20 37		
	Moon I. U.	5.7	18 39 36.95	135.19	66.47	19 34 44.7	+12.7	
	Moon I. L.	-	19 6 28.56	133.38	66.02	19 24 46.6	86.4	
	ξ Sagittarii	4	18 49 52.72			21 17		
	τ Sagittarii	3	19 1 56.31			S. 21 14		
22	ξ Sagittarii	4	18 49 52.70			S. 21 17		
	τ Sagittarii	3	19 1 56.30			21 14		
	Moon I. U.	6.8	19 32 57.55	131.43	65.53	19 0 25.5	+156.5	
	Moon I. L.	-	19 59 2.65	129.41	65.01	18 22 27.1	222.6	
	α ¹ Capricorni	3½	20 10 45.51			12 57		
	β Capricorni	3	20 13 37.43			S. 15 12		
23	α ¹ Capricorni	3½	20 10 45.49			S. 12 57		
	β Capricorni	3	20 13 37.42			15 12		
	Moon I. U.	7.8	20 24 43.38	127.39	64.49	17 31 41.5	+284.3	
	Moon I. L.	-	20 50 0.23	125.44	63.96	16 29 2.2	341.5	
	θ Capricorni	4	20 58 33.60			17 45		
	ν Aquarii -	4½	21 2 26.08			S. 11 54		
24	θ Capricorni	4	20 58 33.59			S. 17 45		
	ν Aquarii -	4½	21 2 26.06			11 54		
	Moon I. U.	8.8	21 14 54.46	123.63	63.47	15 15 23.7	+394.1	
	Moon I. L.	-	21 39 28.11	122.02	63.02	13 51 41.8	442.1	
	γ Capricorni	3½	21 32 48.77			17 15		
	δ Capricorni	3	21 39 47.37			S. 16 43		
25	γ Capricorni	3½	21 32 48.75			S. 17 15		
	δ Capricorni	3	21 39 47.36			16 43		
	Moon I. U.	9.9	22 3 43.89	120.66	62.64	12 18 51.9	+485.4	
	Moon I. L.	-	22 27 45.11	119.60	62.33	10 37 50.6	524.0	
	σ Aquarii -	4½	22 23 41.93			11 21		
	τ ² Aquarii -	4	22 42 38.56			S. 14 17		
26	σ Aquarii -	4½	22 23 41.92			S. 11 21		
	τ ² Aquarii -	4	22 42 38.55			14 17		
	Moon I. U.	10.9	22 51 35.56	118.87	62.10	8 49 34.9	+557.8	
	Moon I. L.	-	23 15 19.40	118.50	61.97	S. 6 55 3.7	+586.6	

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.				
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.
Oct. 26	♈ Aquarii -	4½	h m s 23 7 31.79	"	"	S. 6° 46'	"
	♏ Aquarii -	4½	23 11 5.17			9 54	
	27 ♈ Aquarii -	4½	23 7 31.78			S. 6 46	
	♏ Aquarii -	4½	23 11 5.16			9 54	
	Moon I. U.	11.9	23 39 1.11	118.52	61.94	4 55 18.0	+610.2
	Moon I. L.	-	0 2 45.46	118.94	62.03	2 51 21.9	628.2
	30 Piscium -	5	23 55 14.20			6 45	
	33 Piscium -	5	23 58 37.52			S. 6 27	
	28 30 Piscium -	5	23 55 14.19			S. 6 45	
	33 Piscium -	5	23 58 37.52			6 27	
	Moon I. U.	13.0	0 26 37.32	119.78	62.23	S. 0 44 24.3	+640.4
	Moon I. L.	-	0 50 41.74	121.03	62.54	N. 1 24 21.0	646.1
	♈ Piscium *	4½	0 41 53.16			6 52	
	♏ Piscium *	4	0 56 8.77			N. 7 11	
	29 ♈ Piscium *	4½	0 41 53.15			N. 6 52	
	♏ Piscium *	4	0 56 8.77			7 11	
	Moon I. U.	14.0	1 15 3.71	122.70	62.97	3 33 32.9	+644.7
	Moon I. L.	-	1 39 48.10	124.77	63.50	5 41 44.3	635.8
	♏ Piscium *	4½	1 34 36.90			4 49	
	♈ Piscium -	4	1 46 46.47			N. 2 32	
	30 ♏ Piscium *	4½	1 34 36.90			N. 4 49	
	♈ Piscium -	4	1 46 46.47			2 32	
	Moon I. U.	15.0	2 4 59.62	127.21	64.14	7 47 20.3	+618.7
	♏ Ceti - - *	4	2 21 11.80			7 52	
	♏ Ceti - - *	4	2 37 51.85			N. 9 33	
	31 ♏ Ceti - - *	4	2 21 11.81			N. 7 52	
	♏ Ceti - - *	4	2 37 51.86			9 33	
	Moon II. L.	-	2 32 52.19	130.11	64.86	9 48 38.4	+592.8
	Moon II. U.	16.1	2 59 11.54	133.15	65.64	11 43 49.3	557.5
Nov. 1	f Tauri - *	4	3 23 38.75			12 29	
	e Tauri - *	5	3 41 5.41			N. 10 44	
	f Tauri - *	4	3 23 38.76			N. 12 29	
	e Tauri - *	5	3 41 5.43			10 44	
	Moon II. L.	-	3 26 8.62	136.38	66.47	13 30 58.7	+512.4
	Moon II. U.	17.1	3 53 44.95	139.68	67.32	15 8 8.7	457.6
	♏ Tauri - -	3½	4 20 58.05			18 53	
	♏ Tauri - -	1	4 28 24.25			N. 16 15	
	2 ♏ Tauri - -	3½	4 20 58.07			N. 18 53	
	♏ Tauri - -	1	4 28 24.27			16 15	
	Moon II. L.	-	4 22 0.55	142.90	68.15	16 33 21.9	+393.0
	Moon II. U.	18.1	4 50 53.72	145.91	68.92	17 44 44.1	319.2
	116 Tauri - -	6	5 20 13.88			15 46	
	ζ Tauri - -	3½	5 29 48.76			N. 21 4	
	3 116 Tauri - -	6	5 20 13.90			N. 15 46	
	ζ Tauri - -	3½	5 29 48.79			21 4	
	Moon II. L.	-	5 20 21.03	148.56	69.60	N. 18 40 30.9	+237.3

MOON-CULMINATING STARS, 1868. 42

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.						Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R. A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.			
			h m s	s	s	° ' "	"		
Nov. 3	Moon II. U.	19.2	5 50 17.20	150.70	70.16	N. 19 19 11.8	+ 148.5		
	γ Geminor.	4½	6 21 10.55			20 18			
	γ Geminor.	2½	6 30 8.05			N. 16 30			
4	γ Geminor.	4½	6 21 10.58			N. 20 18			
	γ Geminor.	2½	6 30 8.08			16 30			
	Moon II. L.	-	6 20 35.50	152.23	70.57	19 39 35.5	+ 54.8		
	Moon II. U.	20.2	6 51 7.95	153.06	70.81	19 40 54.9	- 41.8		
	λ Geminor.	3½	7 10 33.15			16 47			
	63 Geminor.	5½	7 19 56.95			N. 21 43			
5	λ Geminor.	3½	7 10 33.18			N. 16 47			
	63 Geminor.	5½	7 19 56.98			21 43			
	Moon II. L.	-	7 21 46.11	153.18	70.87	19 22 49.9	- 138.9		
	Moon II. U.	21.2	7 52 21.68	152.64	70.76	18 45 28.0	234.2		
	μ ² Cancri -	5	8 0 2.15			21 58			
	δ Cancri -	4	8 37 13.05			N. 18 38			
6	μ ² Cancri -	5	8 0 2.18			N. 21 58			
	δ Cancri -	4	8 37 13.08			18 38			
	Moon II. L.	-	8 22 47.23	151.53	70.51	17 49 24.1	- 325.6		
	Moon II. U.	22.3	8 52 56.62	149.98	70.15	16 35 38.6	410.9		
	κ Cancri -	5	9 0 37.83			11 12			
	ο Leonis -	3½	9 34 8.37			N. 10 29			
7	κ Cancri -	5	9 0 37.87			N. 11 12			
	ο Leonis -	3½	9 34 8.40			10 29			
	Moon II. L.	-	9 22 45.53	148.14	69.70	15 5 33.7	- 488.5		
	Moon II. U.	23.3	9 52 11.48	146.18	69.22	13 20 49.0	557.3		
	Α Leonis -	5	10 0 55.37			10 39			
	ρ Leonis -	4	10 25 53.01			N. 9 59			
8	Α Leonis -	5	10 0 55.40			N. 10 39			
	ρ Leonis -	4	10 25 53.04			9 59			
	Moon II. L.	-	10 21 13.81	144.23	68.72	11 23 17.5	- 616.2		
	Moon II. U.	24.4	10 49 53.59	142.43	68.25	9 15 2.6	664.5		
	σ Leonis -	4	11 14 20.98			6 45			
	τ Leonis -	5	11 21 10.15			N. 3 35			
9	σ Leonis -	4	11 14 21.01			N. 6 45			
	τ Leonis -	5	11 21 10.18			3 35			
	Moon II. L.	-	11 18 13.15	140.88	67.84	6 58 14.9	- 701.6		
	Moon II. U.	25.4	11 46 15.87	139.64	67.50	4 35 10.2	727.3		
	π Virginis *	4½	11 54 7.61			7 21			
	η Virginis -	3½	12 13 10.12			N. 0 4			
10	Moon II. L.	-	12 14 5.80	138.75	67.25	N. 2 8 6.3	- 741.4		
	Moon II. U.	26.4	12 41 47.30	138.23	67.08	S. 0 20 36.5	743.8		
11	Moon II. L.	-	13 9 24.67	138.06	67.01	S. 2 48 37.9	- 734.5		
	Moon II. U.	27.5	13 37 2.02	138.21	67.02	5 13 39.7	713.9		
12	Moon II. L.	-	14 4 42.78	138.62	67.10	S. 7 33 26.4	- 682.1		
	Moon II. U.	28.5	14 32 29.64	139.21	67.23	S. 9 45 48.5	- 639.9		

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.				
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Nov. 13	Moon I. L.	- -	^h 15 ^m 0 ^s 24.16	139.88	67.39	S. 11 48' 44" 7	- 587.9
14	Moon I. U.	29.5	15 26 11.66	140.51	67.55	S. 13 40 24.3	- 527.3
	Moon I. L.	- -	15 54 21.20	141.05	67.69	15 19 10.6	459.3
15	Moon I. U.	1.1	16 22 35.86	141.35	67.78	S. 16 43 42.6	- 385.2
	Moon I. L.	- -	16 50 52.34	141.34	67.79	17 52 58.3	306.8
16	Moon I. U.	2.1	17 19 6.40	140.94	67.72	S. 18 46 15.4	- 225.7
	Moon I. L.	- -	17 47 13.17	140.12	67.54	19 23 11.4	143.6
17	Moon I. U.	3.1	18 15 7.60	138.88	67.26	S. 19 43 44.6	- 62.1
	Moon I. L.	- -	18 42 44.75	137.25	66.89	19 48 10.6	+ 17.4
	♂ Sagittarii	5	18 47 9.55			22 50	
	♂ Sagittarii	4	18 56 47.49			S. 21 56	
18	♂ Sagittarii	5	18 47 9.54			S. 22 50	
	♂ Sagittarii	4	18 56 47.48			21 56	
	Moon I. U.	4.2	19 10 0.27	135.29	66.42	19 37 0.6	+ 93.7
	Moon I. L.	- -	19 36 50.78	133.09	65.90	19 10 58.7	165.9
	♂ Sagittarii	5	19 34 59.36			16 26	
	♂ Sagittarii	5	19 38 40.99			S. 20 4	
19	♂ Sagittarii	5	19 34 59.35			S. 16 26	
	♂ Sagittarii	5	19 38 40.97			20 4	
	Moon I. U.	5.2	20 3 13.90	130.75	65.32	18 30 57.9	+ 233.4
	Moon I. L.	- -	20 29 8.50	128.36	64.73	17 37 57.1	295.8
	♂ Capricorni	3	20 13 37.01			15 12	
	♂ Capricorni	5	20 31 54.85			S. 15 25	
20	♂ Capricorni	3	20 13 37.00			S. 15 12	
	♂ Capricorni	5	20 31 54.84			15 25	
	Moon I. U.	6.2	20 54 34.68	126.03	64.14	16 32 58.5	+ 353.0
	Moon I. L.	- -	21 19 33.64	123.84	63.58	15 17 5.5	405.0
	♂ Capricorni	4½	21 14 55.37			17 24	
	♂ Capricorni	3½	21 32 48.35			S. 17 15	
21	♂ Capricorni	4½	21 14 55.35			S. 17 24	
	♂ Capricorni	3½	21 32 48.34			17 15	
	Moon I. U.	7.3	21 44 7.64	121.88	63.07	13 51 20.0	+ 451.8
	Moon I. L.	- -	22 8 19.80	120.21	62.63	12 16 43.5	493.5
	♂ Aquarii -	4	21 59 20.22			14 30	
	♂ Aquarii -	4½	22 9 53.96			S. 8 26	
22	♂ Aquarii -	4	21 59 20.21			S. 14 30	
	♂ Aquarii -	4½	22 9 53.95			8 26	
	Moon I. U.	8.3	22 32 14.02	118.89	62.27	10 34 15.1	+ 530.4
	Moon I. L.	- -	22 55 54.76	117.97	62.02	8 44 52.5	562.6
	♂ Aquarii -	4	22 45 45.66			8 17	
	♂ Aquarii -	4½	23 7 31.48			S. 6 46	
23	♂ Aquarii -	4	22 45 45.65			S. 8 17	
	♂ Aquarii -	4½	23 7 31.47			6 46	
	Moon I. U.	9.3	23 19 27.01	117.48	61.87	6 49 32.6	+ 590.0
	Moon I. L.	- -	23 42 56.09	117.45	61.84	S. 4 49 13.1	+ 612.5

MOON-CULMINATING STARS, 1868. 42

At Greenwich Transit.								
Month and Day.	Name.	Mag- nitude.	Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
			h m s	s	s	° ' "	"	
Nov. 23	30 Piscium -	5	23 55 13.96			S. 6 45		
	33 Piscium -	5	23 58 37.29			6 27		
24	30 Piscium -	5	23 55 13.95			S. 6 45		
	33 Piscium -	5	23 58 37.28			6 27		
	Moon I. U.	10.4	0 6 27.68	117.90	61.94	2 44 52.9	+630.0	
	Moon I. L.	- -	0 30 7.66	118.85	62.17	0 37 34.4	642.2	
	12 Ceti - - -	6	0 23 20.82			4 41		
	13 Ceti - - -	5½	0 28 29.91			S. 4 19		
25	12 Ceti - - -	6	0 23 20.81			S. 4 41		
	13 Ceti - - -	5½	0 28 29.90			S. 4 19		
	Moon I. U.	11.4	0 54 2.01	120.30	62.54	N. 1 31 35.4	+648.4	
	Moon I. L.	- -	1 18 16.84	122.25	63.03	3 41 21.8	648.2	
	ζ Piscium *	4½	1 6 53.18			6 53		
	ν Piscium *	4½	1 34 36.87			N. 4 49		
26	ζ Piscium *	4½	1 6 53.17			N. 6 53		
	ν Piscium *	4½	1 34 36.87			4 49		
	Moon I. U.	12.4	1 42 58.06	124.70	63.65	5 50 22.7	+640.7	
	Moon I. L.	- -	2 8 11.40	127.60	64.38	7 57 5.7	625.1	
	ξ¹ Ceti - - *	4½	2 6 3.55			8 14		
	ξ² Ceti - - *	4	2 21 11.89			N. 7 52		
27	ξ¹ Ceti - - *	4½	2 6 3.55			N. 8 14		
	ξ² Ceti - - *	4	2 21 11.89			7 52		
	Moon I. U.	13.5	2 34 2.14	130.92	65.22	9 59 48.9	+600.5	
	Moon I. L.	- -	3 0 34.78	134.57	66.13	11 56 38.5	566.0	
	λ Ceti - - *	5½	2 52 42.26			8 23		
	ο Tauri - *	3½	3 17 46.30			N. 8 34		
28	λ Ceti - - *	5½	2 52 42.26			N. 8 23		
	ο Tauri - *	3½	3 17 46.30			8 34		
	Moon I. U.	14.5	3 27 52.74	138.45	67.09	13 45 31.4	+521.0	
	Moon I. L.	- -	3 55 57.92	142.42	68.07	15 24 17.6	464.8	
	e Tauri - *	5	3 41 5.72			10 44		
	λ Tauri - *	3½	3 53 25.80			N. 12 7		
29	e Tauri - *	5	3 41 5.72			N. 10 44		
	λ Tauri - *	3½	3 53 25.81			12 7		
	Moon II. U.	15.5	4 27 8.39	146.45	69.02	16 50 42.7	+397.5	
	ο² Orionis - *	5	4 49 0.85			13 18		
	11 Orionis - -	5	4 57 5.46			N. 15 13		
	ο² Orionis - *	5	4 49 0.86			N. 13 18		
30	11 Orionis - -	5	4 57 5.47			15 13		
	Moon II. L.	- -	4 56 47.56	150.02	69.90	18 2 35.5	+319.5	
	Moon II. U.	16.6	5 27 6.71	153.08	70.65	18 57 53.2	231.9	
	χ⁴ Orionis - -	5	5 56 8.72			20 8		
	η Geminor.	3½	6 6 58.41			N. 22 33		
	χ⁴ Orionis - -	5	5 56 8.74			N. 20 8		
Dec. 1	η Geminor.	3½	6 6 58.43			22 33		
	Moon II. U.	- -	6 57 58.55	156.02	71.30	20 57 53.2	+231.9	

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Dec. 1	Moon II. U.	17.6	^h 6 ^m 29 ^s 13.62	156.93	71.62	N. 19 52 9.2	+ 35.8
	ζ Geminor.	4	6 56 20.39			20 46	
	δ Geminor.	3½	7 12 17.85			N. 22 13	
2	ζ Geminor.	4	6 56 20.41			N. 20 46	
	δ Geminor.	3½	7 12 17.87			22 13	
	Moon II. L.	-	7 0 41.08	157.48	71.79	19 49 0.6	- 67.4
	Moon II. U.	18.6	7 32 9.47	157.09	71.74	19 25 13.1	170.1
	ι Cancri -	6	7 49 33.05			16 8	
	μ ^a Cancri -	5	8 0 3.01			N. 21 58	
3	ι Cancri -	6	7 49 33.08			N. 16 8	
	μ ^a Cancri -	5	8 0 3.04			21 58	
	Moon II. L.	-	8 3 27.91	155.84	71.47	18 41 12.4	- 269.2
	Moon II. U.	19.7	8 34 26.90	153.89	71.04	17 37 58.1	362.0
	α Cancri - *	4	8 51 18.88			12 22	
	κ Cancri - *	5	9 0 38.69			N. 11 12	
4	α Cancri - *	4	8 51 18.91			N. 12 22	
	κ Cancri - *	5	9 0 38.72			11 12	
	Moon II. L.	-	9 4 59.14	151.42	70.47	16 16 58.6	- 446.4
	Moon II. U.	20.7	9 34 59.82	148.66	69.83	14 40 4.7	520.8
	ν Leonis - *	5	9 51 9.73			13 4	
	α Leonis - *	1½	10 1 22.83			N. 12 36	
5	ν Leonis - *	5	9 51 9.76			N. 13 4	
	α Leonis - *	1½	10 1 22.86			12 36	
	Moon II. L.	-	10 4 26.68	145.82	69.15	12 49 21.9	- 584.4
	Moon II. U.	21.7	10 33 19.84	143.08	68.49	10 47 4.2	636.6
	c Leonis - *	5	10 53 56.46			6 48	
	x Leonis - *	5	10 58 14.51			N. 8 3	
6	c Leonis - *	5	10 53 56.49			N. 6 48	
	x Leonis - *	5	10 58 14.54			8 3	
	Moon II. L.	-	11 1 41.44	140.58	67.87	8 35 29.2	- 677.3
	Moon II. U.	22.8	11 29 35.17	138.44	67.33	6 16 53.5	706.7
	ν Virginis *	4½	11 39 6.55			7 16	
	π Virginis *	4½	11 54 8.39			N. 7 21	
7	ν Virginis *	4½	11 39 6.57			N. 7 16	
	π Virginis *	4½	11 54 8.42			7 21	
	Moon II. L.	-	11 57 5.73	136.73	66.89	3 53 31.8	- 725.1
	Moon II. U.	23.8	12 24 18.56	135.49	66.56	N. 1 27 34.7	732.7
	γ ¹ Virginis -	2½	12 34 59.98			S. 0 44	
	θ Virginis -	4½	13 3 8.56			S. 4 50	
8	γ ¹ Virginis -	2½	12 35 0.01			S. 0 44	
	θ Virginis -	4½	13 3 8.59			4 50	
	Moon II. L.	-	12 51 19.40	134.73	66.34	0 58 51.1	- 729.9
	Moon II. U.	24.8	13 18 13.88	134.43	66.23	3 23 42.6	- 717.0
	h Virginis -	5	13 26 2.67			9 29	
	m Virginis -	6	13 34 42.67			S. 8 3	
9	h Virginis -	5	13 26 2.69			S. 9 29	

MOON-CULMINATING STARS, 1868. 427

At Greenwich Transit.								
Month and Day.	Name.	Mag- nitude.	Apparent		Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.
			Right Ascension in Time.					
			h	m	s	s	s	"
Dec. 9	m Virginis -	6	13	34	42.70		S. 8	3
	Moon II. L.	- -	13	45	7.33	134.55	66.23	5 45 0.4
	Moon II. U.	25.9	14	12	4.46	135.03	66.32	S. 8 0 49.1
10	Moon II. L.	- -	14	39	9.17	135.79	66.48	S. 10 9 16.5
	Moon II. U.	26.9	15	6	24.21	136.74	66.69	12 8 36.4
11	Moon II. L.	- -	15	33	51.10	137.75	66.91	S. 13 57 8.5
	Moon II. U.	27.9	16	1	29.94	138.70	67.13	15 33 21.6
12	Moon II. L.	- -	16	29	19.33	139.49	67.31	S. 16 55 55.5
	Moon II. U.	29.0	16	57	16.45	139.98	67.43	18 3 44.4
13	Moon II. L.	- -	17	25	17.19	140.08	67.45	S. 18 55 58.4
14	Moon I. U.	0.4	17	51	1.78	139.75	67.36	S. 19 32 6.6
	Moon I. L.	- -	18	18	54.36	138.93	67.17	19 51 56.8
15	Moon I. U.	1.5	18	46	34.25	137.64	66.86	S. 19 55 36.3
	Moon I. L.	- -	19	13	56.05	135.93	66.45	19 43 30.2
16	Moon I. U.	2.5	19	40	55.01	133.85	65.95	S. 19 16 18.9
	Moon I. L.	- -	20	7	27.53	131.53	65.39	18 34 55.2
17	Moon I. U.	3.5	20	33	31.27	129.08	64.78	S. 17 40 20.4
	Moon I. L.	- -	20	59	5.24	126.59	64.17	16 33 41.7
	♄ Capricorni	4	20	58	32.89			17 45
	♊ Aquarii -	4½	21	2	25.39			S. 11 54
18	♄ Capricorni	4	20	58	32.89			S. 17 45
	♊ Aquarii -	4½	21	2	25.38			11 54
	Moon I. U.	4.6	21	24	9.81	124.19	63.57	15 16 8.1
	Moon I. L.	- -	21	48	46.56	121.97	63.02	13 48 49.4
	♄ Capricorni	3	21	39	46.64			16 43
	♊ Aquarii -	4	21	59	19.90			S. 14 30
19	♄ Capricorni	3	21	39	46.63			S. 16 43
	♊ Aquarii -	4	21	59	19.89			14 30
	Moon I. U.	5.6	22	12	58.18	120.02	62.53	12 12 53.4
	Moon I. L.	- -	22	36	48.26	118.40	62.12	10 29 25.3
	♄ Aquarii -	4½	22	23	41.22			11 21
	♊ Aquarii -	4	22	42	37.85			S. 14 17
20	♄ Aquarii -	4½	22	23	41.22			S. 11 21
	♊ Aquarii -	4	22	42	37.84			14 17
	Moon I. U.	6.6	23	0	21.25	117.17	61.81	8 39 27.8
	Moon I. L.	- -	23	23	42.09	116.38	61.62	6 44 0.5
	♊ Aquarii -	4½	23	11	4.51			9 54
	B.A.C. 8239	6	23	34	21.04			S. 12 25
21	♊ Aquarii -	4½	23	11	4.50			S. 9 54
	B.A.C. 8239	6	23	34	21.03			12 25
	Moon I. U.	7.7	23	46	56.35	116.07	61.54	4 44 1.8
	Moon I. L.	- -	0	10	9.97	116.28	61.60	2 40 29.3
30	Piscium -	5	23	55	13.64			6 45
33	Piscium -	5	23	58	36.97			S. 6 27

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					Var. of C's Dec. in 1 hour of Long.
			Apparent Right Ascension in Time.	Var. of C's R.A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.		
Dec. 22	30 Piscium -	5	h m s 23 55 13.62	"	"	S. 6 45		
	33 Piscium -	5	23 58 36.95			6 27		
	Moon I. v.	8.7	0 33 29.22	117.02	61.80	S. 0 34 21.5	+635.5	
	Moon I. L.	- -	0 57 0.63	118.31	62.15	N. 1 33 20.2	640.6	
	δ Piscium *	4½	0 41 52.73			6 52		
	ζ Piscium *	4½	1 6 52.94			N. 6 53		
	δ Piscium *	4½	0 41 52.72			N. 6 52		
	ζ Piscium *	4½	1 6 52.93			6 53		
	Moon I. v.	9.7	1 20 50.91	120.17	62.64	3 41 29.7	+640.0	
	Moon I. L.	- -	1 45 6.87	122.59	63.26	5 48 54.1	633.0	
23	ν Piscium *	4½	1 34 36.66			4 49		
	ξ Piscium -	4	1 46 46.27			N. 2 32		
	ν Piscium *	4½	1 34 36.65			N. 4 49		
	ξ Piscium -	4	1 46 46.26			2 32		
	Moon I. v.	10.8	2 9 55.22	125.56	64.02	7 54 11.9	+618.7	
	Moon I. L.	- -	2 35 22.40	129.05	64.91	9 55 50.6	596.3	
	δ Ceti - - *	4	2 21 11.76			7 52		
	μ Ceti - - *	4	2 37 51.88			N. 9 33		
	δ Ceti - - *	4	2 21 11.76			N. 7 52		
	μ Ceti - - *	4	2 37 51.87			9 33		
25	Moon I. v.	11.8	3 1 34.36	133.01	65.90	11 52 5.8	+564.6	
	Moon I. L.	- -	3 28 36.12	137.34	66.97	13 41 0.8	522.7	
	f Tauri - *	4	3 23 39.00			12 29		
	e Tauri - *	5	3 41 5.75			N. 10 44		
	f Tauri - *	4	3 23 39.00			N. 12 29		
	e Tauri - *	5	3 41 5.75			10 44		
	Moon I. v.	12.8	3 56 31.31	141.89	68.08	15 20 26.7	+469.6	
	Moon I. L.	- -	4 25 21.69	146.50	69.19	16 48 5.6	404.8	
	δ Tauri - -	4	4 15 23.37			17 13		
	α Tauri - -	1	4 28 24.85			N. 16 15		
27	δ Tauri - -	4	4 15 23.37			N. 17 13		
	α Tauri - -	1	4 28 24.85			16 15		
	Moon I. v.	13.9	4 55 6.57	150.93	70.24	18 1 35.2	+328.1	
	Moon I. L.	- -	5 25 42.35	154.94	71.18	18 58 36.8	240.3	
	ζ Tauri - -	3½	5 29 49.69			21 4		
	χ Orionis -	4½	5 46 38.14			N. 20 15		
	ζ Tauri - -	3½	5 29 49.70			N. 21 4		
	χ Orionis -	4½	5 46 38.15			20 15		
	Moon I. v.	14.9	5 57 2.32	158.25	71.95	19 37 3.3	+142.7	
	Moon I. L.	- -	6 28 56.72	160.64	72.50	19 55 11.8	+ 37.7	
28	μ Geminor.	3	6 15 2.74			22 35		
	γ Geminor.	2½	6 30 9.24			N. 16 30		
	μ Geminor.	3	6 15 2.74			N. 22 35		
	γ Geminor.	2½	6 30 9.25			16 30		
	Moon II. v.	15.9	7 3 38.99	161.97	72.81	19 51 51.8	- 71.4	
	δ Geminor.	3½	7 12 18.46			22 13		
	κ Geminor.	3½	7 36 32.69			N. 24 43		
	δ Geminor.	3½	7 12 18.46			22 13		
	κ Geminor.	3½	7 36 32.69			N. 24 43		
	κ Geminor.	3½	7 36 32.69			N. 24 43		

MOON-CULMINATING STARS, 1868. 429

Month and Day.	Name.	Mag- nitude.	At Greenwich Transit.					
			Apparent Right Ascension in Time.	Var. of C's R. A. in 1 hour of Long.	Sidereal Time of C's Sem. pas. mer.	Declination.	Var. of C's Dec. in 1 hour of Long.	
Dec. 30	δ Geminor.	3½	h m s 7 12 18.47	s	s	° ' "	"	
	κ Geminor.	3½	7 36 32.71			N.22 13		
	Moon II. L.	- -	7 36 4.37	162.06	72.85	24 43		
	Moon II. U.	17.0	8 8 24.13	161.05	72.63	19 26 35.7	-181.0	
	γ Cancrī - -	4½	8 35 42.51			18 39 41.0	287.2	
	ξ Cancrī - -	5	9 1 49.72			21 56		
	31	γ Cancrī - -	4½	8 35 42.54			N.22 34	
		ξ Cancrī - -	5	9 1 49.74			N.21 56	
		Moon II. L.	- -	8 40 25.74	159.07	72.20	22 34	
		Moon II. U.	18.0	9 11 58.96	156.36	71.59	17 32 10.2	-386.5
		ο Leonis - *	3½	9 34 10.06			16 5 45.0	-475.8
		ν Leonis - *	5	9 51 10.55			10 29	

In the Year 1868 there will be two Eclipses of the Sun, and a Transit of Mercury over the Sun's disc.

I.—*An Annular Eclipse of the SUN, February 22-23, 1868, invisible at Greenwich.*

ELEMENTS.			
		h	m s
Greenwich Mean Time of \odot in R.A. Feb. 23,		2	23 32.3
\odot 's and ζ 's Right Ascension - - - -		22	24 42.40
ζ 's Declination - - - - - S.		9	52 25.2
\odot 's Declination - - - - - S.		9	56 23.6
ζ 's Hourly Motion in R.A. - - - -		29	33.9
\odot 's Hourly Motion in R.A. - - - -		2	22.8
ζ 's Hourly Motion in Declination - - - N.		8	23.0
\odot 's Hourly Motion in Declination - - - N.			55.0
ζ 's Equatorial Horizontal Parallax - -		54	35.5
\odot 's Equatorial Horizontal Parallax - -			8.7
ζ 's True Semidiameter - - - - -		14	54.0
\odot 's True Semidiameter - - - - -		16	11.7

Begins on the Earth generally, February 22, 23^h 17^m.0, Mean Time at Greenwich, in Longitude 78° 8' W. of Greenwich, and Latitude 12° 54' S.

Central Eclipse begins generally, February 23, 0^h 24^m.2, in Longitude 94° 40' W. of Greenwich, and Latitude 11° 26' S.

Central Eclipse at Noon, February 23, 2^h 23^m.5, in Longitude 32° 29' W. of Greenwich, and Latitude 5° 46' S.

Central Eclipse ends generally, February 23, 4^h 18^m.3, in Longitude 25° 20' E. of Greenwich, and Latitude 19° 26' N.

Ends on the Earth generally, February 23, 5^h 25^m.5, in Longitude 8° 48' E. of Greenwich, and Latitude 17° 59' N.

The central and limiting lines of this Eclipse, in the diagram in page 432, have been laid down from the following calculated positions:—

Line of Central Eclipse.

Longitude.	Latitude.	Longitude.	Latitude.	Longitude.	Latitude.
94° 40' W.	11° 26' S.	48° 30' W.	12° 35' S.	13° 2' W.	6° 24' N.
84 27	13 3	42 36	10 45	7 4	9 30
76 12	13 58	36 24	7 58	0 27 W.	12 21
68 32	14 26	29 39	4 3	6 47 E.	14 57
61 24	14 22	23 52	0 17 S.	14 55	17 13
54 44 W.	13 46 S.	18 34 W.	3 8 N.	25 20 E.	19 26 N.

Northern line of simple contact.

Longitude.	Latitude.	Longitude.	Latitude.	Longitude.	Latitude.
° ' W.	° ' N.	° ' W.	° ' N.	° ' W.	° ' N.
94 59 W.	24 17 N.	55 54 W.	23 13 N.	23 8 W.	39 39 N.
85 55	22 49	50 28	24 56	15 58	43 9
80 31	22 9	45 35	27 3	8 0 W.	46 29
74 5	21 39	40 34	29 42	0 34 E.	49 28
67 46	21 37	35 31	32 37	8 6	51 38
61 43 W.	22 6 N.	29 40 W.	36 2 N.	21 28 E.	54 39 N.

Southern line of simple contact.

Longitude.	Latitude.	Longitude.	Latitude.	Longitude.	Latitude.
° ' W.	° ' S.	° ' W.	° ' S.	° ' E.	° ' S.
106 38 W.	45 7 S.	44 22 W.	46 9 S.	1 10 E.	25 36 S.
91 47	47 16	35 0	43 43	7 5	22 45
82 34	48 7	26 17	40 26	13 3	20 19
73 28	48 32	18 11	36 29	18 46	18 22
63 39	48 27	11 10	32 31	24 50	16 40
53 49 W.	47 40 S.	4 44 W.	28 48 S.	35 21 E.	14 31 S.

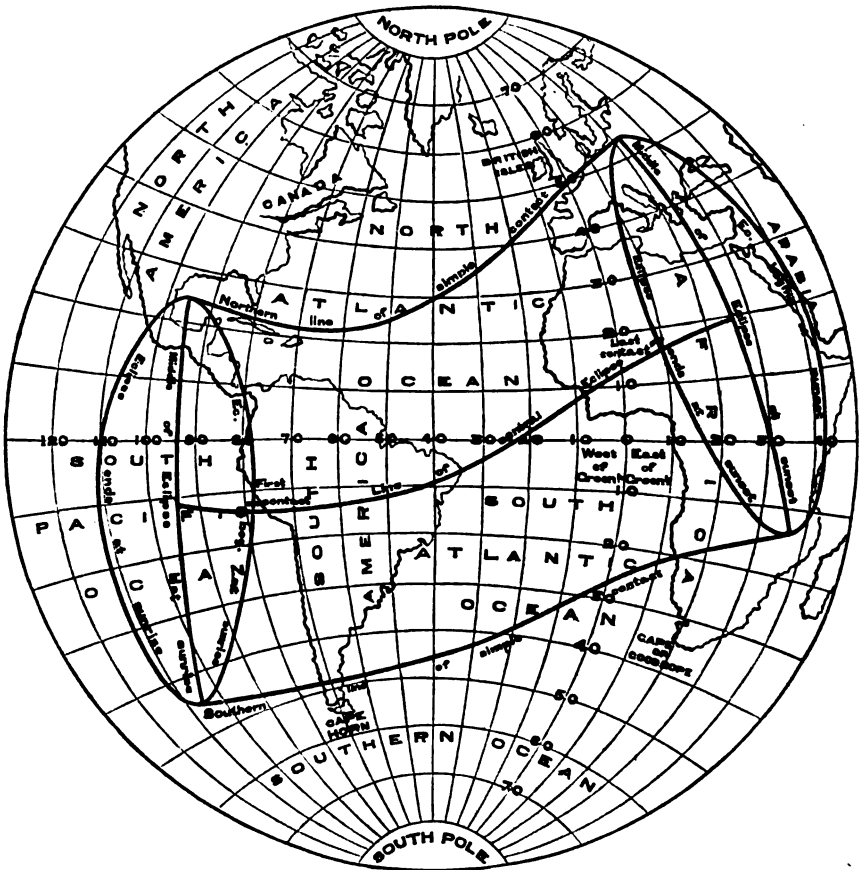
Eclipse begins at Sun-set.

Longitude.	Latitude.	Longitude.	Latitude.	Longitude.	Latitude.
° ' E.	° ' N.	° ' E.	° ' N.	° ' E.	° ' N.
22 31 E.	54 26 N.	37 30 E.	37 21 N.	43 23 E.	6 56 N.
25 52	53 14	38 48	33 40	43 21	0 2 S.
30 17	49 38	41 6	24 48	42 54	4 35
32 49	46 24	42 42	15 31	41 11	10 24
35 54 E.	40 59 N.	43 5 E.	11 24 N.	38 57 E.	13 14 S.

Eclipse ends at Sun-rise.

Longitude.	Latitude.	Longitude.	Latitude.	Longitude.	Latitude.
° ' W.	° ' S.	° ' W.	° ' S.	° ' W.	° ' N.
107 39 W.	44 56 S.	112 50 W.	23 57 S.	107 46 W.	6 35 N.
110 2	43 52	112 26	19 29	106 35	10 18
111 53	41 5	112 1	15 23	104 19	15 49
113 0	35 21	110 35	6 3 S.	102 26	19 8
113 7 W.	30 51 S.	108 46 W.	2 53 N.	98 57 W.	22 50 N.

PATH OF THE MOON'S PENUMBRA UPON
THE SURFACE OF THE EARTH, DURING THE ANNULAR ECLIPSE OF THE SUN,
FEBRUARY 22-23, 1868.



II.—A Total Eclipse of the SUN, August 17, 1868, invisible at Greenwich.

ELEMENTS.			
	h	m	s
Greenwich Mean Time of \odot in R.A. August 17,	17	13	5.3
\odot 's and ζ 's Right Ascension - - - -	9	51	0.25
ζ 's Declination - - - - -	N. 12	59	16.6
\odot 's Declination - - - - -	N. 13	2	6.0
ζ 's Hourly Motion in R. A. - - - - -	37	53.7	
\odot 's Hourly Motion in R. A. - - - - -	2	19.7	
ζ 's Hourly Motion in Declination - - -	S. 9	27.7	
\odot 's Hourly Motion in Declination - - -	S. 48.6		
ζ 's Equatorial Horizontal Parallax - -	61	19.9	
\odot 's Equatorial Horizontal Parallax - -	8.5		
ζ 's True Semidiameter - - - - -	16	44.4	
\odot 's True Semidiameter - - - - -	15	50.7	

Begins on the Earth generally, August 17, 14^h 34^m.7, Mean Time at Greenwich,
in Longitude 49° 25' E. of Greenwich, and Latitude 12° 6' N.

Central Eclipse begins generally, August 17, 15^h 29^m.5,
in Longitude 35° 55' E. of Greenwich, and Latitude 11° 13' N.

Central Eclipse at Noon, August 17, 17^h 13^m.1,
in Longitude 102° 38' E. of Greenwich, and Latitude 10° 27' N.

Central Eclipse ends generally, August 17, 18^h 54^m.4,
in Longitude 163° 27' E. of Greenwich, and Latitude 16° 15' S.

Ends on the Earth generally, August 17, 19^h 49^m.2,
in Longitude 149° 59' E. of Greenwich, and Latitude 15° 23' S.

The central and limiting lines of this Eclipse, in the diagram in page 435,
have been laid down from the following calculated positions:—

Line of Central Eclipse.

Longitude.	Latitude.	Longitude.	Latitude.	Longitude.	Latitude.
° ' E.	° ' N.	° ' E.	° ' N.	° ' E.	° ' S.
35 55 E.	11 13 N.	83 8 E.	16 1 N.	126 6 E.	2 15 S.
47 55	13 47	90 16	14 44	132 37	5 33
53 29	14 46	97 59	12 23	139 25	8 35
60 47	15 47	106 29	8 36	146 12	11 12
68 22	16 26	113 34	4 46	151 31	12 59
75 51 E.	16 33 N.	119 48 E.	1 13 N.	163 27 E.	16 15 S.

Northern line of simple contact.

Longitude.	Latitude.	Longitude.	Latitude.	Longitude.	Latitude.
$^{\circ}$ 23 14 E.	$^{\circ}$ 42 10 N.	$^{\circ}$ 89 59 E.	$^{\circ}$ 46 47 N.	$^{\circ}$ 135 31 E.	$^{\circ}$ 29 32 N.
41 22	45 46	98 57	45 1	141 29	26 31
51 30	47 9	107 38	42 29	147 32	23 42
61 18	47 59	115 47	39 20	153 51	21 5
71 8	48 15	122 55	35 59	160 41	18 39
80 41 E.	47 51 N.	129 27 E.	32 42 N.	174 7 E.	15 4 N.

Southern line of simple contact.

Longitude.	Latitude.	Longitude.	Latitude.	Longitude.	Latitude.
$^{\circ}$ 38 53 E.	$^{\circ}$ 20 59 S.	$^{\circ}$ 81 52 E.	$^{\circ}$ 17 4 S.	$^{\circ}$ 113 16 E.	$^{\circ}$ 30 43 S.
50 39	18 24	87 23	18 23	120 8	34 18
56 55	17 18	92 6	20 1	127 19	37 41
62 59	16 32	96 43	22 0	134 23	40 39
69 26	16 9	101 28	24 21.	142 0	43 28
75 52 E.	16 18 S.	107 3 E.	27 21 S.	157 15 E.	47 55 S.

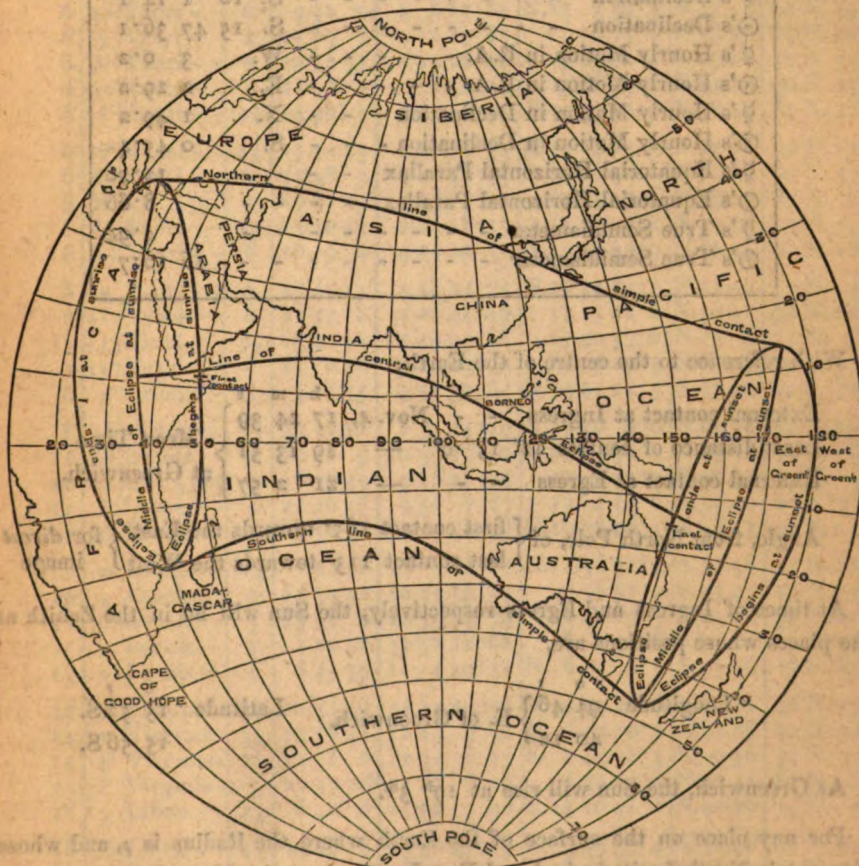
Eclipse begins at Sun-set.

Longitude.	Latitude.	Longitude.	Latitude.	Longitude.	Latitude.
$^{\circ}$ 175 9 E.	$^{\circ}$ 14 49 N.	$^{\circ}$ 179 25 E.	$^{\circ}$ 2 12 S.	$^{\circ}$ 172 24 E.	$^{\circ}$ 31 13 S.
177 8	13 41	178 56	6 26	170 39	35 1
178 34	11 22	176 52	16 33	167 55	39 40
179 31	6 54	176 27	19 8	165 42	42 37
179 40 E.	3 17 N.	175 35 E.	21 30 S.	162 9 E.	45 58 S.

Eclipse ends at Sun-rise.

Longitude.	Latitude.	Longitude.	Latitude.	Longitude.	Latitude.
$^{\circ}$ 36 0 E.	$^{\circ}$ 20 27 S.	$^{\circ}$ 26 18 E.	$^{\circ}$ 3 52 S.	$^{\circ}$ 19 42 E.	$^{\circ}$ 25 14 N.
34 26	18 56	23 41	5 57 N.	19 5	30 39
31 34	15 29	22 54	8 20	18 55	34 12
29 50	12 28	22 30	10 55	19 20	38 36
27 42 E.	7 43 S.	20 21 E.	21 1 N.	20 26 E.	40 52 N.

PATH OF THE MOON'S SHADOW AND PENUMBRA UPON
THE SURFACE OF THE EARTH, DURING THE TOTAL ECLIPSE OF THE SUN,
AUGUST 17, 1868.



A Transit of Mercury over the Sun's disc, November 4, 1868, partly visible at Greenwich.

ELEMENTS.			
Greenwich Mean Time of \odot in R.A. Nov. 4,		^h ^m ^s	
\odot 's and φ 's Right Ascension - - - -		18 12 43	9
φ 's Declination - - - - - S,		16	1 14
\odot 's Declination - - - - - S,		15 47	36
φ 's Hourly Motion in R.A. - - - - - W,		3	0
\odot 's Hourly Motion in R.A. - - - - - E,		2 29	2
φ 's Hourly Motion in Declination - - - - - N,		1 49	2
\odot 's Hourly Motion in Declination - - - - - S,		0 45	4
φ 's Equatorial Horizontal Parallax - - - - -		12	70
\odot 's Equatorial Horizontal Parallax - - - - -		8	66
φ 's True Semidiameter - - - - -		4	94
\odot 's True Semidiameter - - - - -		16 10	7

With reference to the centre of the Earth;

External contact at Ingress - - Nov. 4,	^h ^m ^s	} Mean Time at Greenwich.
Least distance of centres 12' 15'' 0 - -	17 24 39	
External contact at Egress - - - -	19 13 51	
	21 2 57	

Angle, from North Pole, of { first contact 165° towards the East } for *direct*
 { last contact 113 towards the West } *image*

At times of Ingress and Egress respectively, the Sun will be in the Zenith at the places whose positions are,

Longitude $94^{\circ} 46'$	} E. of Greenwich.	Latitude $15^{\circ} 53' S.$
$40^{\circ} 12'$		$15^{\circ} 56' S.$

At Greenwich, the Sun will rise at 19^h 3^m.

For any place on the surface of the Earth where the Radius is ρ , and whose Geocentric North Latitude is l and East Longitude λ , the Mean Greenwich time t of Ingress, may be computed by the formula,

$$t = 17^h 24^m 39^s + [1.7656] \rho \sin l - [1.3656] \rho \cos l \cos (\lambda + 129^{\circ} 59' 8'')$$

also the Mean Greenwich time t of Egress by the formula,

$$t = 21^h 2^m 57^s - [1.3690] \rho \sin l + [1.7645] \rho \cos l \cos (\lambda + 56^{\circ} 21' 2'')$$

ELEMENTS OF OCCULTATIONS, 1868. 437

Month and Day.	Star's Name.	Magnitude.	Greenwich Mean Time of Apparent ♂ in R. A. of (and #.	At Greenwich Mean Time of ♂			Limiting Parallels.
			Apparent R. A. of (and #.	Apparent Declination of #.	Diff. of Apparent Dec. of (and #.		
			h m s	h m s	° ' "	° ' "	Latitude. °
Jan. 3	μ Piscium -	5	8 39 25	1 23 16.13	N. 5 27 35.7	S. 34 44	1 N. 76 S.
3	ν Piscium -	4½	14 3 58	1 34 33.75	4 49 1.1	N. 58 59	90 N. 27 N.
4	ξ Ceti - -	4½	4 49 13	2 6 0.44	8 13 28.3	N. 2 17	37 N. 30 S.
4	μ Ceti - -	4	19 15 38	2 37 48.91	9 33 11.5	N. 60 58	90 N. 31 N.
5	f Tauri - -	4	15 10 48	3 23 35.98	N. 12 28 48.6	N. 59 52	90 N. 31 N.
6	48 Tauri - -	6	9 42 0	4 8 17.64	N. 15 3 56.3	N. 42 1	90 N. 14 N.
6	γ Tauri - -	4	11 19 7	4 12 17.83	15 18 15.2	N. 38 16	83 N. 10 N.
6	δ Tauri - -	4	12 32 37	4 15 20.26	17 13 42.4	S. 69 21	40 S. 73 S.
6	71 Tauri - -	6	13 57 1	4 18 50.37	15 18 49.1	N. 54 20	90 N. 27 N.
6	θ Tauri - -	4½	14 50 4	4 21 2.79	N. 15 39 52.5	N. 38 43	84 N. 11 N.
6	θ Tauri - -	4½	14 52 23	4 21 8.55	N. 15 34 23.9	N. 44 26	90 N. 17 N.
6	80 Tauri - -	6	15 28 9	4 22 37.98	15 20 40.6	N. 61 46	90 N. 37 N.
6	B.A.C. 1391	5	15 37 23	4 23 1.12	15 54 7.6	N. 29 15	67 N. 2 N.
6	81 Tauri - -	5½	15 40 12	4 23 8.15	15 24 1.1	N. 59 38	90 N. 34 N.
6	85 Tauri - -	6	16 9 0	4 24 20.31	N. 15 33 47.9	N. 52 44	90 N. 26 N.
6	α Tauri - -	1	17 45 11	4 28 21.74	N. 16 14 21.1	N. 21 36	57 N. 4 S.
7	111 Tauri - -	6	12 37 8	5 16 44.40	17 15 21.2	N. 49 41	90 N. 26 N.
7	115 Tauri - -	5½	13 40 11	5 19 29.08	17 50 37.6	N. 18 6	53 N. 4 S.
7	117 Tauri - -	6	14 0 48	5 20 23.02	17 7 27.5	N. 62 27	90 N. 41 N.
8	χ Orionis -	5	3 22 35	5 55 39.84	N. 19 41 11.5	S. 57 42	22 S. 70 S.
8	26 Geminor.	5½	17 58 12	6 34 44.19	N. 17 46 8.0	N. 65 38	90 N. 49 N.
11	18 Leonis - -	6	16 22 9	9 39 17.32	12 24 52.9	N. 23 51	59 N. 8 S.
11	B.A.C. 3345	6	16 50 49	9 40 28.34	12 2 11.0	N. 42 14	90 N. 9 N.
11	ν Leonis - -	5	21 10 16	9 51 7.87	13 4 14.6	S. 59 40	23 S. 77 S.
12	α Leonis - -	5	1 10 26	10 0 54.45	N. 10 38 28.1	N. 48 3	90 N. 14 N.
12	α Leonis - -	1½	1 21 22	10 1 21.04	N. 12 36 31.4	S. 71 46	41 S. 77 S.
12	ρ Leonis - -	4	11 33 30	10 25 52.14	9 58 57.9	S. 15 45	20 N. 47 S.
12	c Leonis - -	5	23 31 6	10 53 54.78	6 48 29.3	N. 49 18	90 N. 14 N.
13	χ Leonis - -	5	1 22 50	10 58 12.88	8 2 49.6	S. 45 2	7 S. 77 S.
13	σ Leonis - -	4	8 25 35	11 14 20.18	N. 6 45 2.5	S. 43 46	6 S. 82 S.
13	β Virginis -	3½	21 34 40	11 43 49.54	N. 2 30 26.6	N. 65 41	90 N. 33 N.
14	γ Virginis -	3½	10 58 41	12 13 9.32	N. 0 4 0.5	N. 63 28	90 N. 30 N.
14	γ Virginis -	2½	21 8 0	12 34 58.43	S. 0 43 3.3	S. 0 36	34 N. 35 S.
15	δ Virginis -	5	20 57 19	13 25 6.27	5 34 21.6	N. 37 41	81 N. 2 N.
18	γ Libræ - -	4½	8 47 6	15 28 7.98	S. 14 20 41.0	N. 40 46	74 N. 7 N.
18	48 Libræ - -	4½	19 48 28	15 50 47.19	S. 13 53 37.4	S. 58 46	38 S. 90 S.
19	φ Ophiuchi	5	11 42 14	16 23 34.35	16 19 10.5	S. 2 1	22 N. 37 S.
19	B.A.C. 5579	5	16 42 25	16 33 55.41	17 28 52.2	N. 43 44	73 N. 12 N.
27	λ Aquarii -	4	7 0 19	22 45 42.20	8 16 56.3	S. 2 38	30 N. 37 S.
27	JUPITER -	-	8 38 15	22 48 52.85	S. 8 40 28.8	N. 35 20	77 N. 1 N.
27	φ Aquarii -	4½	18 11 52	23 7 28.00	S. 6 45 41.0	N. 6 58	41 N. 28 S.
30	f Piscium -	6	9 9 14	1 10 59.03	N. 2 55 0.7	N. 45 44	90 N. 12 N.
30	μ Piscium -	5	15 13 56	1 23 15.77	5 27 33.9	S. 45 54	11 S. 85 S.
30	ν Piscium -	4½	20 46 34	1 34 33.39	4 48 59.2	N. 47 50	90 N. 14 N.
31	ξ Ceti - -	4½	11 57 3	2 6 0.07	N. 8 13 26.6	S. 8 41	26 N. 41 S.

ELEMENTS OF OCCULTATIONS, 1868.

Star's Name.	Magnitude.	Greenwich Mean Time of Apparent \odot in R. A. of \odot and $\#$.		At Greenwich Mean Time of \odot			Limiting Parallels.
				Apparent R. A. of \odot and $\#$.	Apparent Declination of $\#$.	Diff. of Apparent Dec. of \odot and $\#$.	
		h m s		h m s		\odot	Latitude.
μ Ceti - -	4	2 52	13	2 37 48	53	N. 9 33 9'9	N. 50 23 90° N. 19° N.
f Tauri - -	4	23 31	56	3 23 35	65	12 28 47'3	N. 50 8 90° N. 20° N.
γ Tauri - -	4	20 28	4	4 12 17	55	15 18 14'4	N. 29 45 69° N. 3° N.
θ^1 Tauri - -	4½	0 7	23	4 21 2	51	15 39 51'8	N. 30 26 70° N. 4° N.
θ^2 Tauri - -	4½	0 9	46	4 21 8	27	N. 15 34 23'1	N. 36 9 79° N. 9° N.
B.A.C. 1391	5	0 56	33	4 23 0	84	N. 15 54 6'9	N. 21 1 57° N. 5° S.
α Tauri - -	1	3 9	22	4 28 21	47	16 14 20'3	N. 13 32 49° N. 11° S.
B.A.C. 1526	6	11 54	55	4 49 45	71	16 56 31'2	N. 16 57 52° N. 7° S.
130° Tauri - -	6	7 47	45	5 39 45	28	17 40 27'3	N. 45 5 90° N. 23° N.
χ^1 Orionis - -	5	13 59	1	5 55 39	74	N. 19 41 11'5	S. 63 2 31° S. 70° S.
5 Cancri - -	6	11 1	49	7 53 59	95	N. 16 48 50'0	N. 45 14 90° N. 20° N.
ν Leonis - -	5	8 29	56	9 51 8	35	13 4 12'5	S. 56 33 19° S. 77° S.
A Leonis - -	5	12 25	57	10 0 54	92	10 38 25'7	N. 51 31 90° N. 18° N.
α Leonis - -	1½	12 36	41	10 1 21	52	12 36 29'2	S. 68 18 35° S. 77° S.
ρ Leonis - -	4	22 36	16	10 25 52	67	N. 9 58 55'1	S. 11 28 24° N. 42° S.
c Leonis - -	5	10 15	58	10 53 55	38	N. 6 48 25'8	N. 54 27 90° N. 19° N.
χ Leonis - -	5	12 4	39	10 58 13	47	8 2 46'3	S. 39 46 2° S. 78° S.
σ Leonis - -	4	18 55	14	11 14 20	80	6 44 59'0	S. 38 2 0 77° S.
β Virginis - -	3½	7 39	41	11 43 50	23	2 30 22'3	N. 72 9 90° N. 42° N.
η Virginis - -	3½	20 36	42	12 13 10	03	N. 0 3 56'0	N. 70 32 90° N. 40° N.
γ^1 Virginis - -	2½	6 24	59	12 34 59	19	S. 0 43 37'0	N. 6 48 41° N. 28° S.
k Virginis - -	6	14 33	17	12 52 52	55	3 5 56'6	N. 58 9 87° N. 23° N.
48 Virginis - -	6	16 29	50	12 57 7	14	2 57 9'4	N. 27 54 65° N. 9° S.
ι^1 Virginis - -	5	5 25	26	13 25 7	10	5 34 26'6	N. 45 33 84° N. 9° N.
γ Libræ - -	4½	15 40	27	15 28 8	83	S. 14 20 44'8	N. 48 5 76° N. 15° N.
48 Libræ - -	4½	2 31	6	15 50 48	07	S. 13 53 41'1	S. 51 45 27° S. 90° S.
ϕ Ophiuchi - -	5	18 13	18	16 23 35	18	16 19 13'5	N. 4 30 29° N. 30° S.
B.A.C. 5579	5	23 10	46	16 33 56	24	17 28 54'8	N. 50 5 73° N. 19° N.
d Sagittarii - -	5	2 0	10	19 9 53	59	19 10 59'5	N. 41 38 71° N. 10° N.
ρ^1 Sagittarii - -	4	3 59	8	19 13 59	79	S. 18 5 29'0	S. 20 16 2° S. 59° S.
τ^1 Capricor. - -	5	17 56	47	20 31 52	02	S. 15 24 56'0	S. 50 7 29° S. 90° S.
μ Piscium - -	5	20 44	37	1 23 15	44	N. 5 27 32'4	S. 48 15 14° S. 85° S.
ν Piscium - -	4½	2 17	32	1 34 33	03	4 48 57'7	N. 45 28 90° N. 12° N.
ξ^1 Ceti - -	4½	17 31	50	2 5 59	69	8 13 25'1	S. 11 5 24° N. 44° S.
μ Ceti - -	4	8 35	34	2 37 48	12	N. 9 33 8'5	N. 48 0 90° N. 16° N.
f Tauri - -	4	5 35	43	3 23 35	18	N. 12 28 46'1	N. 47 54 90° N. 19° N.
γ Tauri - -	4	3 2	39	4 12 17	07	15 18 13'5	N. 27 44 66° N. 1° N.
71 Tauri - -	6	5 51	31	4 18 49	62	15 18 47'5	N. 44 1 90° N. 18° N.
θ^1 Tauri - -	4½	6 48	17	4 21 2	05	15 39 51'0	N. 28 28 67° N. 2° N.
θ^2 Tauri - -	4½	6 50	46	4 21 7	81	N. 15 34 22'4	N. 34 11 77° N. 8° N.
80 Tauri - -	6	7 29	2	4 22 37	23	N. 15 20 39'1	N. 51 34 90° N. 26° N.
B.A.C. 1391	5	7 38	56	4 23 0	38	15 54 6'2	N. 19 3 55° N. 7° S.
81 Tauri - -	5½	7 41	56	4 23 7	41	15 23 59'6	N. 49 27 90° N. 24° N.
85 Tauri - -	6	8 12	46	4 24 19	57	15 33 46'4	N. 42 35 90° N. 17° N.
α Tauri - -	1	9 55	45	4 28 21	02	N. 16 14 19'7	N. 11 35 47° N. 13° S.

ELEMENTS OF OCCULTATIONS, 1868. 439

Month and Day.	Star's Name.	Magnitude.	Greenwich Mean Time of		At Greenwich Mean Time of δ			Limiting Parallels.
			Apparent \odot in R. A. of ☾ and *.	Apparent R. A. of ☾ and *.	Apparent Declination of *.	Diff. of Apparent Dec. of ☾ and *.		
			h m s	h m s	° ' "	° ' "	Latitude.	
Mar. 1	σ^1 Tauri - -	5½	11 19 14	4 31 37.36	N. 15 32 2.4	N. 61 26	90° N. 39° N.	
1	σ^2 Tauri - -	5½	11 21 58	4 31 43.82	15 39 3.6	N. 54 39	90° N. 30° N.	
2	π Tauri - -	6	6 9 22	5 16 43.77	17 15 20.5	N. 41 25	90° N. 19° N.	
2	π Tauri - -	6	7 39 6	5 20 22.40	17 7 26.8	N. 54 19	90° N. 33° N.	
2	χ^3 Orionis -	5	21 58.6	5 55 39.34	N. 19 41 11.7	S. 64 28	35° S. 70° S.	
3	26 Geminor.	5½	13 32 30	6 34 43.83	N. 17 46 8.0	N. 60 28	90° N. 44° N.	
6	B.A.C. 3345	6	14 59 14	9 40 28.85	12 2 8.5	N. 44 43	90° N. 12° N.	
6	ν Leonis -	5	19 18 59	9 51 8.44	13 4 12.4	S. 56 48	20° S. 77° S.	
6	A Leonis -	5	23 18 25	10 0 55.04	10 38 25.1	N. 51 18	90° N. 18° N.	
6	α Leonis -	1½	23 29 18	10 1 21.64	N. 12 36 28.9	S. 68 31	36° S. 77° S.	
7	ρ Leonis -	4	9 35 28	10 25 52.86	N. 9 58 54.3	S. 11 38	24° N. 43° S.	
7	49 Leonis -	6	10 31 36	10 28 8.12	9 19 39.3	N. 17 57	53° N. 15° S.	
7	ϵ Leonis -	5	21 18 58	10 53 55.63	6 48 24.4	N. 54 19	90° N. 19° N.	
7	χ Leonis -	5	23 7 52	10 58 13.72	8 2 45.2	S. 39 54	2° S. 79° S.	
8	σ Leonis -	4	5 58 25	11 14 21.10	N. 6 44 57.5	S. 38 11	0° 77° S.	
8	β Virginis -	3½	18 39 10	11 43 50.58	N. 2 30 20.1	N. 71 59	90° N. 42° N.	
9	η Virginis -	3½	7 28 0	12 13 10.47	N. 0 3 53.3	N. 70 18	90° N. 39° N.	
9	γ^1 Virginis -	2½	17 7 21	12 34 59.66	S. 0 43 39.8	N. 6 30	41° N. 29° S.	
10	δ^1 Virginis -	5	15 39 38	13 25 7.68	5 34 29.9	N. 45 2	84° N. 8° N.	
13	γ Libræ - -	4½	0 22 55	15 28 9.63	S. 14 20 47.9	N. 46 51	76° N. 13° N.	
13	48 Libræ - -	4½	10 57 15	15 50 48.86	S. 13 53 43.8	S. 53 6	28° S. 90° S.	
14	ϕ Ophiuchi	5	2 17 56	16 23 36.03	16 19 15.8	N. 2 58	27° N. 32° S.	
14	B.A.C. 5579	5	7 9 14	16 33 57.09	17 28 57.1	N. 48 30	73° N. 17° N.	
17	δ Sagittarii	5	9 8 53	19 9 54.33	19 10 58.9	N. 39 44	71° N. 8° N.	
17	ρ^1 Sagittarii	4	11 7 33	19 14 0.52	S. 18 5 28.4	S. 22 10	4° S. 61° S.	
19	τ^2 Capricor.	5	1 4 58	20 31 52.61	S. 15 24 54.6	S. 51 44	31° S. 90° S.	
21	MERCURY -	-	19 40 12	22 44 46.13	7 11 40.1	S. 73 5	65° S. 90° S.	
21	λ Aquarii -	4	20 8 43	22 45 42.44	8 16 55.0	S. 3 36	29° N. 38° S.	
22	MARS - -	-	4 57 57	23 3 7.00	S. 7 15 50.1	N. 15 40	50° N. 19° S.	
25	ξ^1 Ceti - -	4½	23 26 28	2 5 59.43	N. 8 13 24.4	S. 7 15	28° N. 40° S.	
26	μ Ceti - -	4	14 18 31	2 37 47.80	N. 9 33 7.8	N. 52 25	90° N. 21° N.	
27	f^1 Tauri - -	4	11 6 23	3 23 34.78	12 28 45.3	N. 53 2	90° N. 24° N.	
28	48 Tauri - -	6	6 44 18	4 8 16.28	15 3 53.9	N. 37 2	83° N. 10° N.	
28	γ Tauri - -	4	8 28 4	4 12 16.61	15 18 12.8	N. 33 27	76° N. 6° N.	
28	δ^2 Tauri - -	4	9 46 38	4 15 19.03	N. 17 13 40.1	S. 74 3	59° S. 73° S.	
28	θ^1 Tauri - -	4½	12 13 44	4 21 1.58	N. 15 39 50.3	N. 34 16	77° N. 8° N.	
28	θ^2 Tauri - -	4½	12 16 12	4 21 7.34	15 34 21.7	N. 39 59	90° N. 14° N.	
28	B.A.C. 1391	5	13 4 25	4 22 59.91	15 54 5.5	N. 24 53	63° N. 1° S.	
28	α Tauri - -	1	15 21 25	4 28 20.55	16 14 19.1	N. 17 28	53° N. 8° S.	
29	π Tauri - -	6	11 41 57	5 16 43.26	N. 17 15 20.2	N. 47 37	90° N. 25° N.	
30	χ^3 Orionis -	5	3 42 51	5 55 38.80	N. 19 41 11.8	S. 58 8	26° S. 70° S.	
Apr. 3	ν Leonis -	5	3 42 11	9 51 8.22	13 4 13.6	S. 52 47	16° S. 77° S.	
3	A Leonis -	5	7 49 14	10 0 54.85	10 38 26.0	N. 55 5	90° N. 23° N.	
3	α Leonis -	1½	8 0 28	10 1 21.45	12 36 30.0	S. 64 45	31° S. 77° S.	

440 ELEMENTS OF OCCULTATIONS, 1868.

Month and Day.	Star's Name.	Magnitude.	Greenwich Mean Time of Apparent ♂ in R. A. of (and #.	At Greenwich Mean Time of ♂			Limiting Parallels.
			Apparent R. A. of (and #.	Apparent Declination of #.	Diff. of Apparent Dec. of (and #.		
			h m s	h m s	° ' "	° ' "	Latitude.
Apr.	3 ρ Leonis - -	4	18 25 3	10 25 52.73	N. 9 58 55.1	S. 8 30	27 N. 40 S.
	4 c Leonis - -	5	6 28 9	10 53 55.56	6 48 24.8	N. 56 39	90 N. 22 N.
	4 χ Leonis - -	5	8 19 53	10 58 13.68	8 2 45.7	S. 37 42	0 76 S.
	4 σ Leonis - -	4	15 20 32	11 14 21.09	6 44 57.9	S. 36 29	1 N. 75 S.
	5 β Virginis -	3½	4 17 25	11 43 50.65	N. 2 30 19.8	N. 72 41	90 N. 44 N.
	5 η Virginis -	3½	17 18 47	12 13 10.61	N. 0 35 2.7	N. 69 58	90 N. 39 N.
	6 γ' Virginis -	2½	3 4 57	12 34 59.86	S. 0 43 40.5	N. 5 22	40 N. 30 S.
	6 k Virginis -	6	11 8 12	12 52 53.32	3 6 0.8	N. 56 0	87 N. 20 N.
	7 ℓ Virginis -	5	1 44 3	13 25 8.01	5 34 31.3	N. 42 4	84 N. 5 N.
	9 γ Libræ - -	4½	9 56 56	15 28 10.24	S. 14 20 49.6	N. 40 2	75 N. 5 N.
	9 η Libræ - -	6	13 51 3	15 36 40.70	S. 15 14 59.6	N. 65 35	75 N. 39 N.
	9 48 Lil.ræ - -	4½	20 20 32	15 50 49.51	13 53 45.2	S. 60 30	38 S. 90 S.
	10 φ Ophiuchi	5	11 24 31	16 23 36.73	16 19 17.0	S. 5 7	19 N. 40 S.
	10 B.A.C. 5579	5	16 10 25	16 33 57.82	17 28 58.2	N. 40 14	72 N. 6 N.
	13 d Sagittarii	5	17 4 3	19 9 55.15	S. 19 10 57.5	N. 29 59	54 N. 3 S.
	13 ρ' Sagittarii	4	19 1 45	19 14 1.33	S. 18 5 26.9	S. 31 55	14 S. 78 S.
	15 τ' Capricor.	5	8 50 34	20 31 53.35	15 24 52.0	S. 61 4	45 S. 90 S.
	18 λ Aquarii -	4	4 7 58	22 45 42.95	8 16 51.9	S. 9 58	23 N. 45 S.
	18 φ Aquarii -	4½	15 11 38	23 7 28.57	6 45 37.1	N. 0 28	34 N. 34 S.
	19 JUPITER -	-	18 35 57	0 141.91	S. 0 59 47.0	S. 75 16	68 S. 90 S.
20 MERCURY -	-	11 15 10	0 35 7.38	N. 0 55 9.8	S. 17 48	17 N. 53 S.	
24 γ Tauri - -	4	14 49 58	4 12 16.35	15 18 12.6	N. 41 39	90 N. 14 N.	
24 δ' Tauri - -	4	16 6 53	4 15 18.76	17 13 39.7	S. 65 45	36 S. 73 S.	
24 θ' Tauri - -	4½	18 30 56	4 21 1.30	15 39 50.1	N. 42 46	90 N. 16 N.	
24 θ' Tauri - -	4½	18 33 21	4 21 7.06	N. 15 34 21.5	N. 48 29	90 N. 22 N.	
24 B.A.C. 1391	5	19 20 33	4 22 59.62	N. 15 54 5.2	N. 33 26	75 N. 7 N.	
24 α Tauri - -	1	21 34 45	4 28 20.25	16 14 18.7	N. 26 12	64 N. 0	
26 χ' Orionis -	5	9 17 40	5 55 38.38	19 41 11.7	S. 47 5	12 S. 70 S.	
26 ν' Orionis -	5	9 28 11	5 56 4.51	20 8 9.5	S. 73 46	57 S. 70 S.	
26 ν Geminor.	4½	19 32 0	6 21 7.21	N. 20 17 25.2	S. 72 56	54 S. 70 S.	
28 5 Cancri - -	6	8 52 18	7 53 58.86	N. 16 48 52.4	N. 62 50	90 N. 42 N.	
30 ν Leonis - -	5	9 38 7	9 51 7.86	13 4 15.3	S. 41 24	4 S. 76 S.	
30 A Leonis - -	5	13 50 29	10 0 54.50	10 38 27.5	N. 66 14	90 N. 38 N.	
30 α Leonis - -	1½	14 1 58	10 1 21.11	12 36 31.7	S. 53 36	17 S. 77 S.	
May	1 ρ Leonis - -	4	0 41 6	10 25 52.43	N. 9 58 56.8	N. 2 0	37 N. 30 S.
	1 c Leonis - -	5	13 2 33	10 53 55.31	N. 6 48 26.3	N. 66 13	90 N. 35 N.
	1 χ Leonis - -	5	14 57 13	10 58 13.43	8 2 47.3	S. 28 18	9 N. 63 S.
	1 σ Leonis - -	4	22 9 5	11 14 20.87	6 44 59.4	S. 27 42	9 N. 63 S.
	3 η Virginis -	3½	0 49 12	12 13 10.52	N. 0 353.5	N. 76 0	90 N. 54 N.
	3 γ' Virginis -	2½	10 50 16	12 34 59.82	S. 0 43 39.8	N. 10 14	45 N. 25 S.
	4 ℓ Virginis -	5	9 59 41	13 25 8.09	S. 5 34 31.2	N. 44 4	76 N. 7 N.
	6 γ Libræ - -	4½	18 49 30	15 28 10.66	14 20 50.2	N. 34 57	69 N. 1 S.
	7 48 Libræ - -	4½	5 13 28	15 50 49.99	13 53 45.5	S. 66 44	48 S. 90 S.
	7 φ Ophiuchi	5	20 14 50	16 23 37.28	16 19 17.3	S. 12 56	12 N. 49 S.
8 B.A.C. 5579	5	0 59 14	16 33 58.41	S. 17 28 58.6	N. 31 58	61 N. 3 S.	

ELEMENTS OF OCCULTATIONS, 1868. 441

Month and Day.	Star's Name.	Magnitude.	Greenwich Mean Time of	At Greenwich Mean Time of δ			Limiting Parallels.
			Apparent \odot in R. A. of (ϵ and \ast .)	Apparent R. A. of (ϵ and \ast .)	Apparent Declination of \ast .	Diff. of Apparent Dec. of (ϵ and \ast .)	
			h m s	h m s	$^{\circ}$ ' "	$^{\circ}$ ' "	Latitude.
May 11	d Sagittarii	5	1 12 3	19 9 55.99	S. 19 10 55.5	N. 16 34	36 N. 18 S.
11	ρ^1 Sagittarii	4	3 8 42	19 14 2.17	18 5 24.8	S. 45 26	29 S. 90 S.
12	ρ Capricor.	5	11 33 31	20 21 20.48	18 14 41.8	N. 69 31	72 N. 63 N.
14	e^2 Aquarii -	6	14 44 39	22 3 34.56	12 12 37.3	N. 30 29	66 N. 4 S.
15	σ Aquarii -	4½	1 0 57	22 23 39.77	S. 11 21 0.4	N. 62 29	79 N. 36 N.
15	λ Aquarii -	4	12 20 15	22 45 43.66	S. 8 16 47.4	S. 23 39	9 N. 62 S.
15	ϕ Aquarii -	4½	23 30 55	23 7 29.25	S. 6 45 32.6	S. 12 36	21 N. 49 S.
18	μ Piscium -	5	19 39 18	1 23 15.80	N. 5 27 36.1	S. 51 10	16 S. 85 S.
19	ν Piscium -	4½	1 4 19	1 34 33.36	4 49 1.9	N. 44 1	90 N. 9 N.
19	ξ^1 Ceti - -	4½	15 52 32	2 5 59.78	N. 8 13 27.5	S. 8 22	27 N. 41 S.
23	χ^3 Orionis -	5	16 34 36	5 55 38.23	N. 19 41 11.8	S. 37 51	1 S. 61 S.
23	χ^4 Orionis -	5	16 44 50	5 56 4.35	20 8 9.5	S. 64 30	33 S. 70 S.
24	ν Geminor.	4½	2 32 1	6 21 7.00	20 17 25.3	S. 62 36	30 S. 70 S.
27	18 Leonis -	6	9 51 55	9 39 16.84	12 24 54.8	N. 57 34	90 N. 27 N.
27	ν Leonis -	5	14 53 20	9 51 7.49	N. 13 4 17.0	S. 25.59	11 N. 56 S.
27	α^1 Leonis -	1½	19 15 32	10 1 20.75	N. 12 36 33.5	S. 38 9	1 S. 73 S.
28	ρ Leonis -	4	5 52 38	10 25 52.08	9 58 58.6	N. 17 20	53 N. 16 S.
28	χ Leonis -	5	20 10 14	10 58 13.11	8 2 49.2	S. 13 21	23 N. 46 S.
29	σ Leonis -	4	3 24 38	11 14 20.56	N. 6 45 1.3	S. 13 4	23 N. 47 S.
30	γ^1 Virginis -	2½	16 33 58	12 34 59.64	S. 0 43 38.3	N. 22 7	59 N. 14 S.
31	ρ^1 Virginis -	5	16 9 54	13 25 8.01	S. 5 34 30.1	N. 53 23	84 N. 18 N.
June 1	94 Virginis -	6	8 19 35	13 59 20.37	8 15 41.9	N. 45 54	82 N. 10 N.
1	95 Virginis -	6	8 31 40	13 59 45.95	8 41 1.0	N. 69 11	81 N. 42 N.
3	γ Libræ -	4½	2 3 39	15 28 10.86	14 20 49.9	N. 36 43	72 N. 1 N.
3	48 Libræ -	4½	12 36 10	15 50 50.24	S. 13 53 45.1	S. 66 24	48 S. 90 S.
3	49 Libræ -	5½	13 35 12	15 52 57.37	S. 16 8 30.5	N. 61 43	74 N. 33 N.
4	ϕ Ophiuchi	5	3 47 20	16 23 37.63	16 19 17.0	S. 14 35	11 N. 51 S.
4	B.A.C. 5579	5	8 34 9	16 33 58.78	17 28 58.4	N. 29 42	58 N. 5 S.
7	d Sagittarii	5	8 50 1	19 9 56.69	19 10 53.7	N. 3 33	22 N. 31 S.
7	ρ^1 Sagittarii	4	10 46 10	19 14 2.88	S. 18 5 22.8	S. 58 41	47 S. 90 S.
8	ρ Capricor.	5	19 2 47	20 21 21.28	S. 18 14 38.7	N. 56 1	72 N. 28 N.
10	μ Capricor.	5	13 19 15	21 46 7.18	14 10 4.5	N. 64 51	76 N. 42 N.
11	σ Aquarii -	4½	8 35 19	22 23 40.60	11 20 55.5	N. 46 41	79 N. 14 N.
11	λ Aquarii -	4	20 0 43	22 45 44.49	8 16 42.3	S. 39 33	8 S. 90 S.
12	ϕ Aquarii -	4½	7 19 8	23 7 30.09	S. 6 45 27.3	S. 28 29	5 N. 69 S.
15	μ Piscium -	5	4 39 1	1 23 16.54	N. 5 27 40.7	S. 63 38	33 S. 85 S.
15	ν Piscium -	4½	10 10 2	1 34 34.04	4 49 6.3	N. 32 3	73 N. 3 S.
16	ξ^1 Ceti - -	4½	1 13 33	2 6 0.44	8 13 31.5	S. 18 47	17 N. 53 S.
16	ξ^2 Ceti - -	4	8 18 32	2 21 8.66	7 51 56.9	N. 73 11	90 N. 53 N.
16	μ Ceti - -	4	15 58 38	2 37 48.59	N. 9 33 13.8	N. 46 10	90 N. 13 N.
17	f Tauri - -	4	12 20 29	3 23 35.29	N. 12 28 49.5	N. 54 20	90 N. 24 N.
23	ν Leonis -	5	21 34 7	9 51 7.24	13 4 18.3	S. 12 47	23 N. 42 S.
24	α Leonis -	1½	1 48 44	10 1 20.47	12 36 34.9	S. 24 42	12 N. 55 S.
24	ρ Leonis -	4	12 8 28	10 25 51.81	9 59 0.2	N. 31 21	70 N. 3 S.

Month and Day.	Star's Name.	Magnitude.	Greenwich Mean Time of Apparent ♂ in R. A. of (and #.	At Greenwich Mean Time of ♂			Limiting Parallels
			Apparent R. A. of (and #.	Apparent Declination of #.	Diff. of Apparent Dec. of (and #.		
			h m s	h m s	° ' "	° ' "	Latitude.
June 25	♄ Leonis - -	4	9 10 57	11 14 20.27	N. 6 45 3.1	N. 1 34	37 N. 32 S.
26	γ Virginis - -	2½	21 52 1	12 34 59.37	S. 0 43 36.4	N. 36 18	79 N. 1 S.
27	48 Virginis - -	6	8 13 10	12 57 7.55	2 57 9.9	N. 53 44	87 N. 18 N.
27	♄ Virginis - -	5	21 25 43	13 25 7.78	5 34 28.5	N. 66 20	84 N. 35 N.
30	γ Libræ - -	4½	7 51 18	15 28 10.83	S. 14 20 49.3	N. 44 28	76 N. 10 N.
30	γ Libræ - -	6	11 52 19	15 36 41.36	S. 15 14 59.5	N. 68 37	75 N. 47 N.
30	48 Libræ - -	4½	18 32 19	15 50 50.26	13 53 44.3	S. 59 47	37 S. 90 S.
July 1	♄ Ophiuchi	5	9 55 36	16 23 37.72	16 19 16.5	S. 9 39	16 N. 46 S.
1	B.A.C. 5579	5	14 46 4	16 33 58.89	17 28 58.0	N. 34 6	65 N. 0
4	♄ Sagittarii	5	15 35 16	19 9 57.18	S. 19 10 52.4	N. 2 53	21 N. 32 S.
4	♄ Sagittarii	4	17 31 38	19 14 3.37	S. 18 5 21.4	S. 59 29	48 S. 90 S.
6	♄ Capricor.	5	1 48 20	20 21 21.92	18 14 36.5	N. 49 52	72 N. 20 N.
7	42 Capricor.	6	14 4 28	21 34 24.23	14 37 46.2	N. 40 35	75 N. 7 N.
7	44 Capricor.	6	14 50 7	21 35 54.37	14 59 51.8	N. 67 57	75 N. 52 N.
7	♄ Capricor.	5	20 1 48	21 46 7.93	S. 14 10 0.9	N. 55 2	76 N. 26 N.
8	♄ Aquarii - -	4½	15 19 26	22 23 41.39	S. 11 20 51.3	N. 35 42	76 N. 1 N.
8	58 Aquarii - -	6	15 51 28	22 24 43.27	11 34 33.1	N. 53 49	78 N. 23 N.
9	♄ Aquarii - -	4	2 47 35	22 45 45.31	8 16 37.4	S. 51 5	22 S. 90 S.
9	♄ Aquarii - -	4½	14 10 19	23 7 30.90	6 45 22.3	S. 40 28	8 S. 90 S.
10	♄ Piscium - -	5½	13 29 17	23 51 56.35	S. 4 17 8.0	N. 32 56	76 N. 2 S.
12	♄ Piscium - -	4½	18 17 22	1 34 34.84	N. 4 49 11.4	N. 20 3	57 N. 15 S.
13	♄ Ceti - -	4½	9 44 20	2 6 1.24	8 13 36.3	S. 30 7	6 N. 68 S.
13	♄ Ceti - -	4	17 0 40	2 21 9.44	7 52 1.6	N. 62 14	90 N. 33 N.
14	♄ Ceti - -	4	0 53 10	2 37 49.40	9 33 18.4	N. 35 42	80 N. 2 N.
14	♄ Tauri - -	4	21 46 57	3 23 36.02	N. 12 28 53.1	N. 45 22	90 N. 14 N.
15	γ Tauri - -	4	18 51 19	4 12 17.47	N. 15 18 18.0	N. 35 18	78 N. 7 N.
15	♄ Tauri - -	4	20 8 3	4 15 19.88	17 13 44.2	S. 71 36	47 S. 73 S.
15	♄ Tauri - -	4½	22 31 27	4 21 2.36	15 39 55.2	N. 37 47	83 N. 10 N.
15	♄ Tauri - -	4½	22 33 51	4 21 8.12	15 34 26.6	N. 43 31	90 N. 16 N.
15	B.A.C. 1391	5	23 20 48	4 23 0.68	N. 15 54 10.2	N. 28 46	68 N. 2 N.
16	♄ Tauri - -	1	1 34 1	4 28 21.29	N. 16 14 23.4	N. 22 22	59 N. 4 S.
21	♄ Leonis - -	5	6 35 21	9 51 7.14	13 4 19.0	S. 6 15	29 N. 35 S.
21	♄ Leonis - -	1½	10 42 1	10 1 20.36	12 36 35.6	S. 17 49	19 N. 47 S.
21	♄ Leonis - -	4	20 41 45	10 25 51.65	9 59 1.2	N. 39 0	82 N. 4 N.
22	♄ Leonis - -	5	10 11 3	10 58 12.61	N. 8 2 52.1	N. 9 43	45 N. 24 S.
22	♄ Leonis - -	4	17 2 22	11 14 20.05	N. 6 45 4.5	N. 10 30	45 N. 24 S.
24	γ Virginis - -	2½	4 35 58	12 34 59.07	S. 0 43 34.7	N. 46 22	89 N. 9 N.
25	♄ Virginis - -	5	3 35 58	13 25 7.46	5 34 26.8	N. 76 25	84 N. 56 N.
27	γ Libræ - -	4½	13 23 38	15 28 10.58	14 20 48.4	N. 52 37	76 N. 19 N.
28	48 Libræ - -	4½	0 4 19	15 50 50.04	S. 13 53 43.4	S. 52 12	26 S. 90 S.
28	♄ Ophiuchi	5	15 29 48	16 23 37.55	S. 16 19 16.0	S. 2 56	22 N. 38 S.
28	B.A.C. 5579	5	20 21 31	16 33 58.74	17 28 57.6	N. 40 32	72 N. 7 N.
31	♄ Sagittarii	5	21 38 46	19 9 57.35	19 10 52.1	N. 4 41	22 N. 30 S.
31	♄ Sagittarii	4	23 35 44	19 14 3.55	18 5 20.9	S. 57 48	46 S. 90 S.
Aug. 1	57 Sagittarii	5½	14 10 22	19 14 34.37	S. 19 22 25.8	N. 52 32	71 N. 24 N.

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Month and Day.	Star's Name.	Magnitude.	Greenwich Mean Time of Apparent ♂ in R. A. of ☾ and *.	At Greenwich Mean Time of ☾			Limiting Parallels.
			Apparent R. A. of ☾ and *.	Apparent Declination of *.	Diff. of Apparent Dec. of ☾ and *.		
			h m s	h m s	° ' "	☾ ' "	Latitude. °
Aug. 2	♏ Capricor.	5	7 58 40	20 21 22 25	S. 18 14 35 7	N. 49 33	72 N. 19 N.
4	♍ Capricor.	5	2 10 46	21 46 8 45	14 9 58 7	N. 52 21	76 N. 22 N.
4	♈ Aquarii -	4½	21 26 6	22 23 41 96	11 20 48 4	N. 32 7	70 N. 2 S.
5	♈ Aquarii -	4	8 53 11	22 45 45 91	8 16 34 0	S. 55 11	27 S. 90 S.
5	♏ Aquarii -	4½	20 15 29	23 7 31 54	S. 6 45 18 6	S. 45 0	13 S. 90 S.
9	♊ Piscium -	4½	0 57 45	1 34 35 67	N. 4 49 16 3	N. 14 5	50 N. 20 S.
9	♎ Ceti - -	4½	16 43 16	2 6 2 05	8 13 40 9	S. 36 1	0 77 S.
10	♎ Ceti - -	4	0 9 46	2 21 10 28	7 52 6 2	N. 56 23	90 N. 26 N.
10	♍ Ceti - -	4	8 14 9	2 37 50 21	9 33 22 7	N. 29 58	70 N. 3 S.
11	♌ Tauri - -	4	5 43 34	3 23 36 86	N. 12 28 57 1	N. 40 3	90 N. 9 N.
12	♌ Tauri - -	4	3 27 43	4 12 18 30	N. 15 18 21 2	N. 30 35	71 N. 3 N.
12	♌ Tauri - -	4½	7 14 56	4 21 3 18	15 39 58 2	N. 33 11	75 N. 6 N.
12	♌ Tauri - -	4½	7 17 25	4 21 8 93	15 34 29 7	N. 38 54	87 N. 12 N.
12	B. A. C. 1391	5	8 55 2	4 23 1 49	15 54 13 2	N. 24 11	62 N. 2 S.
12	♌ Tauri - -	1	10 23 21	4 28 22 07	N. 16 14 26 2	N. 17 51	54 N. 8 S.
13	♌ Tauri - -	6	15 54 56	5 39 45 21	N. 17 40 31 5	N. 64 2	90 N. 46 N.
13	♏ Orionis -	5	22 15 34	5 55 39 53	19 41 14 5	S. 41 4	5 S. 67 S.
13	♏ Orionis -	5	22 25 55	5 56 5 66	20 8 12 0	S. 67 40	39 S. 70 S.
14	♊ Geminor.	4½	8 17 6	6 21 8 16	N. 20 17 27 0	S. 62 57	31 S. 70 S.
20	♍ Virginis -	2½	13 35 17	12 34 58 82	S. 0 43 33 5	N. 49 0	89 N. 11 N.
21	♍ Virginis -	6	7 59 19	13 16 29 25	S. 4 13 57 3	N. 42 59	85 N. 5 N.
21	♍ Virginis -	5	11 51 34	13 25 7 14	5 34 25 3	N. 79 14	84 N. 66 N.
23	♏ Libræ - -	4½	20 6 40	15 28 10 18	14 20 47 3	N. 55 7	76 N. 22 N.
24	♏ Libræ - -	4½	6 35 29	15 50 49 64	13 53 42 5	S. 49 49	23 S. 90 S.
24	♏ Ophiuchi	5	21 47 17	16 23 37 17	S. 16 19 15 4	S. 0 45	24 N. 36 S.
25	B. A. C. 5579	5	2 35 31	16 33 58 35	S. 17 28 57 1	N. 42 38	73 N. 9 N.
28	♏ Sagittarii	5	3 38 54	19 9 57 18	19 10 52 6	N. 5 45	24 N. 29 S.
28	♏ Sagittarii	4	5 36 8	19 14 3 39	18 5 21 2	S. 56 45	44 S. 90 S.
29	♏ Capricor.	5	14 3 54	20 21 22 25	18 14 35 9	N. 50 17	72 N. 20 N.
31	♍ Capricor.	5	8 17 30	21 46 8 63	S. 14 9 58 2	N. 52 54	76 N. 23 N.
Sept. 1	♈ Aquarii -	4½	3 30 13	22 23 42 24	S. 11 20 47 3	N. 32 41	71 N. 2 S.
1	♈ Aquarii -	4	14 54 47	22 45 46 23	8 16 32 4	S. 54 35	26 S. 90 S.
2	♏ Aquarii -	4½	2 14 4	23 7 31 92	S. 6 45 16 6	S. 44 20	12 S. 90 S.
4	♎ Ceti - -	6	14 55 13	1 3 48 68	N. 1 44 48 0	N. 42 1	90 N. 7 N.
5	♊ Piscium -	4½	6 41 40	1 34 36 30	N. 4 49 19 8	N. 15 35	52 N. 19 S.
5	♎ Ceti - -	4½	22 30 51	2 6 2 74	N. 8 13 44 6	S. 34 18	1 N. 75 S.
6	♎ Ceti - -	4	6 0 29	2 21 10 99	7 52 9 7	N. 58 13	90 N. 29 N.
6	♍ Ceti - -	4	14 9 22	2 37 50 94	9 33 26 3	N. 31 54	74 N. 1 S.
7	♌ Tauri - -	4	11 56 50	3 23 37 64	12 29 0 3	N. 42 14	90 N. 12 N.
8	♌ Tauri - -	4	10 8 23	4 12 19 10	N. 15 18 23 9	N. 32 58	76 N. 6 N.
8	♌ Tauri - -	4	11 29 32	4 15 21 51	N. 17 13 49 8	S. 73 53	63 S. 73 S.
8	♌ Tauri - -	6	13 2 43	4 18 51 58	15 18 57 6	N. 50 40	90 N. 25 N.
8	♌ Tauri - -	4½	14 1 17	4 21 3 99	15 40 0 8	N. 35 35	81 N. 9 N.
8	♌ Tauri - -	4½	14 3 49	4 21 9 74	15 34 32 2	N. 41 20	90 N. 15 N.

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Month and Day.	Star's Name.	Magnitude.	Greenwich Mean Time of Apparent ♂ in R.A. of (and #.		At Greenwich Mean Time of ♂			Limiting Parallels.
					Apparent R.A. of (and #.	Apparent Declination of #.	Diff. of Apparent Dec. of (and #.	
			h m s	h m s	° ' "	° ' "	° ' "	Latitude.
Sept. 8	B.A.C. 1391	5	14 53 31	4 23 2' 30	N.15 54 15' 7	N.26 37	66 N. 0	
8	81 Tauri - -	5½	14 56 37	4 23 9' 32	15 24 9' 4	N.57 1	90 N. 33 N.	
8	85 Tauri - -	6	15 28 25	4 24 21' 47	15 33 56' 1	N.50 25	90 N. 25 N.	
8	α Tauri - -	1	17 14 36	4 28 22' 87	16 14 28' 6	N.20 18	57 N. 6 S.	
9	111 Tauri - -	6	14 2 27	5 16 45' 16	N.17 15 27' 0	N.60 0	90 N. 40 N.	
9	115 Tauri - -	5½	15 11 46	5 19 29' 83	N.17 50 43' 1	N.29 4	69 N. 6 N.	
10	χ ³ Orionis -	5	6 12 44	5 55 40' 34	19 41 15' 4	S.38 35	3 S. 63 S.	
10	χ ⁴ Orionis -	5	6 23 26	5 56 6' 47	20 8 12' 8	S.65 11	36 S. 70 S.	
10	ν Geminor.	4½	16 34 48	6 21 8' 92	20 17 27' 3	S.60 30	28 S. 70 S.	
12	VENUS - -	-	18 37 7	8 27 24' 82	N.16 142' 1	N.71 8	90 N. 51 N.	
14	ν Leonis -	5	3 51 3	9 51 7' 57	N.13 4 17' 6	S. 4 46	31 N. 34 S.	
17	ι Virginis -	5	21 57 50	13 25 6' 92	S. 5 34 24' 6	N.75 59	84 N. 49 N.	
20	γ Libræ - -	4½	4 42 29	15 28 9' 74	14 20 46' 3	N.50 5	76 N. 15 N.	
20	48 Libræ - -	4½	14 54 8	15 50 49' 19	13 53 41' 7	S.55 4	28 S. 90 S.	
21	φ Ophiuchi	5	5 42 28	16 23 36' 68	S.16 19 14' 7	S. 6 14	19 N. 42 S.	
21	B.A.C. 5579	5	10 23 46	16 33 57' 87	S.17 28 56' 5	N.37 5	68 N. 2 N.	
24	d Sagittarii	5	10 21 7	19 9 56' 76	19 10 53' 3	N. 0 23	18 N. 35 S.	
24	ρ' Sagittarii	4	12 17 38	19 14 2' 98	18 5 21' 9	S.62 6	52 S. 90 S.	
25	π Capricor.	5	19 53 45	20 19 48' 20	18 38 15' 9	N.66 1	71 N. 48 N.	
25	ρ Capricor.	5	20 39 32	20 21 21' 95	S.18 14 37' 1	N.45 41	72 N. 14 N.	
27	42 Capricor.	6	8 57 44	21 34 24' 72	S.14 37 44' 8	N.35 30	72 N. 2 N.	
27	44 Capricor.	6	9 43 19	21 35 54' 87	14 59 50' 5	N.62 52	75 N. 39 N.	
27	μ Capricor.	5	14 54 18	21 46 8' 50	14 9 59' 2	N.49 54	76 N. 18 N.	
28	σ Aquarii -	4½	10 7 2	22 23 42' 19	11 20 47' 9	N.30 39	68 N. 4 S.	
28	58 Aquarii -	6	10 38 54	22 24 44' 09	S.11 34 29' 8	N.48 46	78 N. 16 N.	
28	λ Aquarii -	4	21 30 44	22 45 46' 24	S. 8 16 32' 5	S.55 58	28 S. 90 S.	
29	φ Aquarii -	4½	8 48 17	23 7 31' 97	6 45 16' 5	S.45 2	13 S. 90 S.	
29	χ Aquarii -	5½	10 6 49	23 10 3' 00	S. 8 26 26' 9	N.68 18	82 N. 47 N.	
Oct. 2	ν Piscium -	4½	12 41 11	1 34 36' 71	N. 4 49 21' 6	N.20 8	57 N. 15 S.	
3	ξ Ceti - -	4½	4 20 48	2 6 3' 25	N. 8 13 46' 8	S.28 42	7 N. 66 S.	
3	ξ Ceti - -	4	11 46 9	2 21 11' 50	N. 7 52 11' 7	N.64 18	90 N. 38 N.	
3	μ Ceti - -	4	19 50 48	2 37 51' 50	9 33 28' 4	N.38 28	87 N. 6 N.	
4	f' Tauri - -	4	17 29 54	3 23 38' 28	12 29 2' 4	N.50 0	90 N. 21 N.	
5	48 Tauri - -	6	13 52 16	4 8 19' 66	15 4 7' 0	N.44 23	90 N. 17 N.	
5	γ Tauri - -	4	15 39 37	4 12 19' 83	N.15 18 25' 5	N.41 43	90 N. 14 N.	
5	δ' Tauri - -	4	17 0 56	4 15 22' 25	N.17 13 51' 6	S.65 6	38 S. 73 S.	
5	θ' Tauri - -	4½	19 33 4	4 21 4' 72	15 40 2' 3	N.44 28	90 N. 18 N.	
5	θ' Tauri - -	4½	19 35 37	4 21 10' 48	15 34 33' 8	N.50 12	90 N. 24 N.	
5	B.A.C. 1391	5	20 25 29	4 23 3' 04	15 54 17' 2	N.35 31	81 N. 9 N.	
5	α Tauri - -	1	22 47 5	4 28 23' 63	N.16 14 29' 9	N.29 17	70 N. 3 N.	
7	χ ¹ Orionis -	4½	8 20 56	5 46 36' 38	N.20 14 50' 6	S.70 42	50 S. 70 S.	
7	χ ² Orionis -	5	12 8 42	5 55 41' 16	19 41 15' 6	S.28 48	7 N. 49 S.	
7	χ ⁴ Orionis -	5	12 19 36	5 56 7' 30	20 8 13' 0	S.55 24	22 S. 70 S.	
7	ν Geminor.	4½	22 42 44	6 21 9' 74	20 17 27' 1	S.50 40	16 S. 70 S.	
9	3 Cancri -	6	12 17 8	7 53 14' 97	N.17 39 54' 8	N.47 30	90 N. 24 N.	

ELEMENTS OF OCCULTATIONS, 1868. 445

Month and Day.	Star's Name.	Magnitude.	Greenwich Mean Time of		At Greenwich Mean Time of ☿			Limiting Parallels.
			Apparent ♂ in R. A. of ☿ and ♀.	Apparent R. A. of ☿ and ♀.	Apparent Declination of ♀.	Diff. of Apparent Dec. of ☿ and ♀.		
			h m s	h m s	° ' "	° ' "	Latitude.	
Oct. 11	♂ Leonis -	5	12 32 9	9 51 8.10	N. 13 4 14.6	N. 2 2	37 N. 28 S.	
11	α Leonis -	1½	16 47 13	10 1 21.24	12 36 31.4	S. 9 52	26 N. 39 S.	
12	♀ VENUS -	-	2 21 48	10 24 14.78	9 55 13.1	N. 56 49	90 N. 23 N.	
12	ρ Leonis -	4	3 24 7	10 25 52.35	9 58 57.6	N. 46 4	90 N. 11 N.	
12	χ Leonis -	5	16 42 52	10 58 13.05	N. 8 2 49.0	N. 15 22	50 N. 19 S.	
12	σ Leonis -	4	23 35 1	11 14 20.37	N. 6 45 1.9	N. 15 21	50 N. 20 S.	
17	γ Libræ -	4½	14 36 13	15 28 9.47	S. 14 20 45.9	N. 41 40	76 N. 5 N.	
18	48 Libræ -	4½	0 35 58	15 50 48.87	13 53 41.3	S. 64 16	40 S. 90 S.	
18	φ Ophiuchi	5	15 5 15	16 23 36.31	16 19 14.2	S. 16 26	10 N. 53 S.	
18	B.A.C. 5579	5	19 40 15	16 33 57.48	S. 17 28 56.0	N. 26 37	53 N. 9 S.	
20	21 Sagittarii	5	18 2 37	18 17 30.71	S. 20 36 25.4	N. 65 3	69 N. 43 N.	
21	29 Sagittarii	6	5 10 28	18 41 51.61	20 28 9.5	N. 53 32	70 N. 24 N.	
21	d Sagittarii	5	18 9 55	19 9 56.27	19 10 54.1	S. 12 17	5 N. 49 S.	
22	f Sagittarii	5	7 39 54	19 38 41.38	20 4 20.2	N. 69 39	70 N. 63 N.	
23	π Capricor.	5	3 21 9	20 19 47.73	S. 18 38 17.3	N. 53 33	71 N. 24 N.	
23	ρ Capricor.	5	4 6 37	20 21 21.48	S. 18 14 38.5	N. 33 14	63 N. 1 S.	
24	μ Capricor.	5	22 15 49	21 46 8.16	14 10 0.9	N. 38 57	76 N. 5 N.	
25	σ Aquarii -	4½	17 31 3	22 23 41.92	11 20 49.5	N. 20 51	55 N. 14 S.	
26	λ Aquarii -	4	4 56 45	22 45 46.00	8 16 33.9	S. 64 56	42 S. 90 S.	
26	φ Aquarii -	4½	16 16 15	23 7 31.79	S. 6 45 17.7	S. 53 4	22 S. 90 S.	
29	ν Piscium -	4½	19 58 25	1 34 36.89	N. 4 49 21.7	N. 20 25	58 N. 15 S.	
30	ξ Ceti - -	4½	11 27 45	2 6 3.51	8 13 47.3	S. 26 28	10 N. 63 S.	
30	ξ Ceti - -	4	18 47 14	2 21 11.80	7 52 12.1	N. 67 27	90 N. 42 N.	
31	μ Ceti - -	4	2 44 54	2 37 51.86	9 33 29.0	N. 42 36	90 N. 10 N.	
Nov. 1	f Tauri - -	4	0 24 2	3 23 38.76	N. 12 29 3.1	N. 56 41	90 N. 28 N.	
1	γ Tauri - -	4	21 48 46	4 12 20.41	N. 15 18 26.1	N. 50 46	90 N. 24 N.	
1	δ Tauri - -	4	23 8 39	4 15 22.85	17 13 52.4	S. 55 55	22 S. 53 S.	
2	β Tauri - -	5	0 15 2	4 17 54.80	17 37 30.1	S. 72 22	53 S. 72 S.	
2	θ Tauri - -	4½	1 38 7	4 21 5.35	15 40 2.8	N. 53 55	90 N. 28 N.	
2	θ Tauri - -	4½	1 40 37	4 21 11.10	N. 15 34 34.3	N. 59 39	90 N. 36 N.	
2	B.A.C. 1391	5	2 29 36	4 23 3.67	N. 15 54 17.8	N. 45 3	90 N. 18 N.	
2	α Tauri - -	1	4 48 44	4 28 24.27	16 14 30.5	N. 39 2	89 N. 12 N.	
2	B.A.C. 1526	6	14 04 9	4 49 48.34	16 56 40.0	N. 48 12	90 N. 24 N.	
3	χ Orionis -	4½	13 52 32	5 46 37.15	20 14 50.3	S. 58 10	26 S. 70 S.	
3	χ Orionis -	5	17 37 46	5 55 41.94	N. 19 41 15.1	S. 16 1	20 N. 34 S.	
3	χ Orionis -	5	17 48 34	5 56 8.08	N. 20 8 12.5	S. 42 36	7 S. 70 S.	
4	ν Geminor.	4½	4 6 7	6 21 10.58	20 17 26.2	S. 37 15	1 S. 60 S.	
4	ξ Geminor.	4	18 27 10	6 56 19.62	20 45 30.2	S. 66 45	39 S. 69 S.	
6	♂ Cancri -	6	16 58 42	8 49 55.12	15 49 24.7	N. 51 17	90 N. 24 N.	
6	♂ Cancri -	6	17 6 51	8 50 14.75	N. 16 4 57.9	N. 34 51	78 N. 7 N.	
7	ν Leonis -	5	18 42 55	9 51 8.85	N. 13 4 10.5	N. 16 13	52 N. 15 S.	
7	α Leonis -	1½	23 4 37	10 1 21.96	12 36 27.2	N. 4 7	40 N. 26 S.	
8	ρ Leonis -	4	9 37 24	10 25 53.04	9 58 53.4	N. 59 23	90 N. 26 N.	
8	χ Leonis -	5	23 42 22	10 58 13.69	8 2 44.8	N. 27 34	65 N. 8 S.	

Month and Day.	Star's Name.	Magnitude.	Greenwich Mean Time of Apparent ♂ in R. A. of (and ♄.	At Greenwich Mean Time of ♄			Limiting Parallels.
			Apparent R. A. of (and ♄.	Apparent Declination of ♄.	Diff. of Apparent Dec. of (and ♄.		
			h m s	h m s	° ' "	° ' "	Latitude.
Nov. 10	γ Virginis -	2½	18 44 17	12 34 59.27	S. 0 43 37.8	N. 53 36	89° N. 16° N.
10	B.A.C. 4277	6	19 34 47	12 36 51.67	0 50 56.9	N. 50 50	89° N. 13° N.
11	β Virginis -	5	17 17 21	13 25 7.25	5 34 27.5	N. 76 57	84° N. 54° N.
16	15 Sagittarii	5	22 30 10	18 7 21.37	20 45 45.9	N. 66 49	69° N. 46° N.
17	21 Sagittarii	5	3 2 22	18 17 30.39	S. 20 36 25.5	N. 52 8	69° N. 21° N.
18	d Sagittarii	5	2 46 51	19 9 55.88	S. 19 10 54.6	S. 26 54	9° S. 69° S.
18	f Sagittarii	5	16 4 48	19 38 40.98	20 4 20.9	N. 54 18	70° N. 25° N.
19	π Capricor.	5	11 31 8	20 19 47.31	18 38 18.4	N. 37 23	69° N. 3° N.
19	ρ Capricor.	5	12 16 6	20 21 21.06	18 14 39.6	N. 17 2	41° N. 18° S.
21	μ Capricor.	5	6 10 10	21 46 7.74	S. 14 10 2.8	N. 22 15	54° N. 13° S.
22	σ Aquarii -	4½	1 26 55	22 23 41.54	S. 11 20 51.6	N. 4 31	56° N. 31° S.
23	φ Aquarii -	4½	0 19 47	23 7 31.47	S. 6 45 19.7	S. 68 27	48° S. 90° S.
25	33 Ceti - -	6	13 3 40	1 3 49.02	N. 1 44 47.8	N. 33 48	78° N. 2° S.
26	ν Piscium -	4½	4 38 20	1 34 36.87	4 49 20.6	N. 12 21	49° N. 23° S.
26	ξ Ceti - - -	4½	20 9 30	2 6 3.55	N. 8 13 46.7	S. 32 25	4° N. 71° S.
27	ξ Ceti - - -	4	3 28 32	2 21 11.89	N. 7 52 11.3	N. 62 33	90° N. 33° N.
27	μ Ceti - - -	4	11 24 35	2 37 51.98	9 33 28.4	N. 38 52	88° N. 5° N.
28	f Tauri - -	4	8 32 16	3 23 39.00	12 20 2.7	N. 56 8	90° N. 27° N.
28	γ Tauri - -	4	5 59 10	4 12 20.80	15 18 25.9	N. 53 26	90° N. 26° N.
29	δ Tauri - -	4	7 17 36	4 15 23.25	N. 17 13 52.4	S. 53 2	18° S. 73° S.
29	δ Tauri - -	5	8 22 46	4 17 55.20	N. 17 37 30.2	S. 69 20	43° S. 72° S.
29	75 Tauri - -	6	9 40 48	4 20 57.61	16 3 45.4	N. 33 3	76° N. 5° N.
29	θ Tauri - -	4½	9 44 17	4 21 5.74	15 40 2.5	N. 57 9	90° N. 31° N.
29	θ Tauri - -	4½	9 46 44	4 21 11.50	15 34 34.0	N. 62 54	90° N. 39° N.
29	B.A.C. 1391	5	10 34 47	4 23 4.07	N. 15 54 17.5	N. 48 24	90° N. 21° N.
29	α Tauri - -	1	12 51 13	4 28 24.68	N. 16 14 30.2	N. 42 44	90° N. 15° N.
30	115 Tauri - -	5½	10 8 25	5 19 31.92	17 50 43.3	N. 57 22	90° N. 35° N.
30	119 Tauri - -	5½	12 11 11	5 24 32.41	18 29 32.1	N. 26 13	65° N. 4° N.
30	120 Tauri - -	6	12 43 25	5 25 51.44	18 26 32.9	N. 31 13	73° N. 8° N.
30	χ Orionis -	4½	21 8 45	5 46 37.77	N. 20 14 49.8	S. 49 59	14° S. 70° S.
Dec. 1	χ Orionis -	5	0 48 7	5 55 42.60	N. 19 41 14.3	S. 7 21	29° N. 25° S.
1	χ Orionis -	5	0 58 37	5 56 8.74	20 8 11.8	S. 33 55	3° N. 56° S.
1	ν Geminor.	4½	10 59 43	6 21 11.27	20 17 25.1	S. 27 19	9° N. 45° S.
2	ξ Geminor.	4	0 57 48	6 56 20.41	20 45 28.5	S. 55 13	20° S. 69° S.
2	g Geminor.	5½	17 42 51	7 38 32.11	N. 18 49 32.0	N. 26 54	66° N. 5° N.
3	d Cancri - -	6	9 40 14	8 18 24.66	N. 17 28 27.9	N. 42 14	90° N. 16° N.
3	δ Cancri - -	4	17 16 55	8 37 13.94	18 37 57.1	S. 69 28	41° S. 71° S.
4	ν Leonis - -	5	23 54 46	9 51 9.72	13 4 5.8	N. 32 39	73° N. 0°
5	α Leonis - -	1½	4 15 18	10 1 22.86	12 36 22.2	N. 20 37	57° N. 11° S.
5	ρ Leonis - -	4	14 47 19	10 25 53.89	N. 9 58 48.3	N. 75 58	90° N. 55° N.
5	l Leonis - -	5	21 56 59	10 42 21.20	N. 11 14 17.3	S. 73 9	45° S. 79° S.
6	χ Leonis - -	5	4 55 58	10 58 14.54	8 2 39.4	N. 43 58	90° N. 8° N.
6	σ Leonis - -	4	12 4 59	11 14 21.82	N. 6 44 52.3	N. 43 3	90° N. 6° N.
8	γ Virginis -	2½	0 38 46	12 35 0.01	S. 0 43 42.9	N. 67 23	89° N. 34° N.
8	65 Virginis -	6	19 46 25	13 16 30.08	S. 4 14 4.6	N. 53 42	86° N. 16° N.

ELEMENTS OF OCCULTATIONS, 1868. 447

Month and Day.	Star's Name.	Magnitude.	At Greenwich Mean Time of δ				Limiting Parallels.
			Greenwich Mean Time of δ in R. A. of C and *.	Apparent R. A. of C and *.	Apparent Declination of *.	Diff. of Apparent Dec. of C and *.	
			$h\ m\ s$	$h\ m\ s$	$^{\circ}\ ' \ ''$	$^{\circ}\ ' \ ''$	Latitude.
Dec. 11	γ Libræ - -	4½	8 5 23	15 28 9.94	S. 14 20 48.6	N. 40 53	76 N. 4 N.
11	48 Libræ - -	4½	18 17 29	15 50 49.22	13 53 43.0	S. 67 55	47 S. 90 S.
11	49 Libræ - -	5½	19 14 33	15 52 56.34	16 8 29.0	N. 59 40	74 N. 28 N.
15	d Sagittarii	5	11 15 10	19 9 55.79	19 10 55.1	S. 36 2	19 S. 87 S.
16	f Sagittarii	5	0 27 21	19 38 40.83	S. 20 4 21.3	N. 43 52	70 N. 11 N.
16	π Capricor.	5	19 43 47	20 19 47.09	S. 18 38 19.1	N. 25 16	51 N. 10 S.
16	ρ Capricor.	5	20 28 23	20 21 20.83	18 14 40.4	N. 4 52	28 N. 31 S.
17	θ Capricor.	4	14 24 53	20 58 32.89	17 45 6.0	N. 66 50	72 N. 48 N.
18	μ Capricor.	5	14 5 8	21 46 7.43	14 10 4.3	N. 7 26	37 N. 28 S.
19	σ Aquarii -	4½	9 19 53	22 23 41.21	S. 11 20 53.4	S. 11 0	20 N. 48 S.
23	ν Piscium -	4½	13 42 10	1 34 36.66	N. 4 49 18.9	S. 0 35	35 N. 36 S.
24	ξ Ceti - -	4½	5 30 21	2 6 3.39	8 13 45.2	S. 43 58	8 S. 82 S.
24	ξ Ceti - -	4	12 56 53	2 21 11.76	7 52 9.9	N. 51 44	90 N. 19 N.
24	μ Ceti - -	4	21 0 31	2 37 51.88	9 33 27.1	N. 28 53	69 N. 5 S.
25	f Tauri - -	4	18 23 59	3 23 39.00	N. 12 29 1.7	N. 48 35	90 N. 18 N.
26	48 Tauri - -	6	14 14 20	4 8 20.71	N. 15 4 6.7	N. 50 38	90 N. 23 N.
26	γ Tauri - -	4	15 58 7	4 12 20.91	15 18 25.2	N. 48 37	90 N. 20 N.
26	δ Tauri - -	4	17 16 39	4 15 23.37	17 13 52.1	S. 57 42	24 S. 73 S.
26	δ Tauri - -	5	18 21 52	4 17 55.32	17 37 29.9	S. 73 51	55 S. 72 S.
26	θ Tauri - -	4½	19 43 24	4 21 5.88	N. 15 40 2.0	N. 52 49	90 N. 26 N.
26	θ Tauri - -	4½	19 45 52	4 21 11.64	N. 15 34 33.3	N. 58 34	90 N. 33 N.
26	B.A.C. 1391	5	20 33 54	4 23 4.21	15 54 16.9	N. 44 11	90 N. 16 N.
26	α Tauri - -	1	22 50 13	4 28 24.85	16 14 29.7	N. 38 48	87 N. 11 N.
27	B.A.C. 1526	6	7 49 1	4 49 49.04	16 56 39.1	N. 50 28	90 N. 25 N.
28	χ Orionis -	4½	6 51 50	5 46 38.15	N. 20 14 49.4	S. 49 37	13 S. 70 S.
28	χ Orionis -	5	10 27 41	5 55 42.98	N. 19 41 13.8	S. 6 31	29 N. 25 S.
28	χ Orionis -	5	10 38 1	5 56 9.12	20 8 11.3	S. 33 3	4 N. 54 S.
28	γ Orionis -	5½	14 57 59	6 7 9.13	19 11 42.5	N. 32 33	74 N. 12 N.
28	ν Geminor.	4½	20 27 54	6 21 11.82	20 17 24.4	S. 25 9	12 N. 42 S.
29	ζ Geminor.	4	10 6 27	6 56 20.94	N. 20 45 27.6	S. 51 18	15 S. 69 S.
30	ζ Cancræ -	5½	12 30 18	8 4 42.35	N. 18 2 18.9	N. 41 44	90 N. 17 N.
30	d Cancræ -	6	17 50 8	8 18 25.36	17 28 25.4	N. 49 57	90 N. 24 N.
31	δ Cancræ -	4	1 11 30	8 37 14.71	18 37 54.3	S. 60 58	25 S. 71 S.
31	π Cancræ -	6	13 20 56	9 8 0.08	N. 15 28 54.9	N. 45 15	90 N. 15 N.

OCCULTATIONS OF PLANETS AND FIXED STARS BY THE MOON, VISIBLE AT GREENWICH.

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Month and Day.	Star's Name.	Magnitude.	Disappearance.				Reappearance.			
			Sidereal Time.	Mean Time.	Angle from		Sidereal Time.	Mean Time.	Angle from	
					N. Point.	Ver- tex.			N. Point.	Ver- tex.
Jan. 6	48 Tauri - -	6	h m	h m	°	°	h m	h m	°	°
6	7 Tauri - - -	4	4 23	9 20	75	79	5 27	10 24	311	330
6	71 Tauri - - -	6	6 31	11 28	81	111	7 36	12 33	297	333
6	71 Tauri - - -	6	9 56	14 52	15	55	10 5	15 1	356	35
6	8 Tauri - - -	4½	10 30	15 26	101	141	11 22	16 18	269	306
6	6 Tauri - - -	4½	10 32	15 28	81	121	11 23	16 18	289	326
6	B.A.C. 1391 -	5	11 27	16 23	149	186	11 57†	16 53	221	256
6	80 Tauri - - -	6	11 30†	16 26	5	42				
6	31 Tauri - - -	5½	11 40†	16 36	5	41				
6	85 Tauri - - -	6	11 47*	16 43	63	99	12 29†	17 24	307	339
7	11 Tauri - - -	6	8 13	13 6	31	66	8 44	13 37	334	12
7	115 Tauri - - -	5½	9 44†	14 36	181	222				
7	17 Tauri - - -	6	10 6†	14 58	1	41				
8	26 Geminorum -	5½	13 57	18 45	22	57	14 18†	19 6	329	3
11	18 Leonis - - -	6	12 15†	16 52	160	190				
11	B.A.C. 3345 -	6	12 30	17 6	92	123	13 29	18 5	229	266
30	f Piscium - - -	6	6 34	9 56	48	86	7 4	10 26	347	26
Feb. 3	B.A.C. 1526 -	6	9 52†	12 58	183	224				
4	130 Tauri - - -	6	3 54	6 57	58	33	4 50	7 53	316	303
6	5 Cancri - - -	6	7 47	10 42	43	41	8 44	11 39	298	311
8	A Leonis - - -	5	9 17	12 3	23	13	10 5	12 51	298	299
9	c Leonis - - -	5	6 44†	9 27	343	306				
11	k Virginis - - -	6	11 32	14 6	8	353	12 12	14 46	301	293
11	h Virginis - - -	6	14 5†	16 39	156	168				
14	γ Libræ - - -	4½	12 1	14 23	50	20	13 8	15 30	270	248
28	μ Ceti - - -	4	7 57	9 25	36	75	8 20	9 48	350	29
29	f Tauri - - -	4	4 0	5 25	48	57	4 40	6 5	345	3
Mar. 1	71 Tauri - - -	6	4 0	5 21	64	59	5 0	6 20	322	332
1	8 Tauri - - -	4½	5 18	6 39	114	129	6 31	7 52	267	296
1	8 Tauri - - -	4½	5 18	6 39	94	109	6 33	7 53	287	316
1	80 Tauri - - -	6	6 39†	8 0	9	38				
1	B.A.C. 1391 -	5	6 43	8 3	153	182	7 25	8 45	225	260
1	81 Tauri - - -	5½	6 58†	8 19	8	40				
1	85 Tauri - - -	6	7 11	8 32	60	93	8 6	9 26	315	353
1	σ Tauri - - -	5½	10 55	12 14	24	63	11 13	12 33	345	23
1	σ Tauri - - -	5½	11 3†	12 23	4	43				
2	111 Tauri - - -	6	4 8	5 25	70	52	5 14	6 30	308	307
2	117 Tauri - - -	6	6 42†	7 58	5	25				
3	26 Geminorum -	5½	13 9	14 20	29	68	13 38	14 49	320	357
6	B.A.C. 3345 -	6	14 34	15 33	105	144	15 20	16 19	220	259
7	49 Leonis - - -	6	9 21	9 59	159	142				

OCCULTATIONS OF PLANETS AND FIXED STARS BY THE MOON, VISIBLE AT GREENWICH.

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			Sidereal Time.	Mean Time.	Angle from		Sidereal Time.	Mean Time.	Angle from	
					N. Point.	Ver- tex.			N. Point.	Ver- tex.
			h m	h m	°	°	h m	h m	°	°
Mar. 10	β Virginis - -	5	14 53	15 36	101	116	15 52	16 36	214	238
28	48 Tauri - -	6	7 33	7 8	84	120	8 37	8 11	292	332
28	γ Tauri - -	4	9 31	9 5	107	147	10 28	10 1	265	304
29	111 Tauri - -	6	12 45	12 14	83	119	13 33†	13 2	279	310
Apr. 3	A Leonis - -	5	8 19†	7 30	342	321				
3	44 Leonis - -	6	16 39	15 48	79	118	17 30†	16 39	246	282
6	κ Virginis - -	6	11 37	10 35	24	9	12 32	11 30	285	281
9	η Libræ - -	6	14 52	13 38	0	352	15 18	14 3	323	319
10	B.A.C. 5579 - -	5	17 23	16 5	137	145	18 7	16 49	203	218
13	δ Sagittarii - -	5	18 21†	16 50	183	175				
24	α Tauri - -	1	22 52†	20 38	194	154				
28	5 Cancri - -	6	12 24†	9 56	348	27				
May 1	c Leonis - -	5	16 32	13 51	38	77	17 18	14 36	283	322
4	β Virginis - -	5	11 59	9 7	70	56	13 14	10 21	238	236
14	ϵ Aquarii - -	6	17 14†	13 42	193	156				
27	18 Leonis - -	6	14 54	10 31	59	99	15 48	11 25	266	304
June 1	94 Virginis - -	6	12 2	7 20	61	42	13 17	8 35	248	241
1	95 Virginis - -	6	13 13†	8 31	335	326				
3	49 Libræ - -	5½	18 52	14 1	49	76	19 54	15 2	290	323
4	B.A.C. 5579 - -	5	12 0†	7 6	121	86	12 45	7 51	207	175
10	μ Capricorni - -	5	17 8	11 50	47	11	17 48	12 30	338	305
16	μ Ceti - -	4	20 16	14 34	141	103	21 3	15 20	256	217
27	48 Virginis - -	6	14 41	8 16	66	85	15 53	9 28	245	273
30	η Libræ - -	6	19 22	12 45	9	40	19 46	13 8	329	2
July 7	42 Capricorni - -	6	20 35	13 30	147	137	21 40	14 35	249	249
7	44 Capricorni - -	6	21 49†	14 44	20	22				
8	σ Aquarii - -	4½	22 16	15 7	161	160	23 12	16 3	245	253
8	58 Aquarii - -	6	22 32	15 23	83	85	23 44	16 34	324	338
10	27 Piscium - -	5½	19 52†	12 36	200	166				
16	α Tauri - -	1	10 8	2 29	162	202	10 30	2 51	209	249
Aug. 1	57 Sagittarii - -	5½	23 26	14 42	58	89	0 15†	15 31	327	3
2	ρ Capricorni - -	5	15 7†	6 20	88	50	16 13	7 26	279	245
13	130 Tauri - -	6	0 21†	14 50	10	329				
21	65 Virginis - -	6	18 49	8 47	141	179	19 9†	9 8	184	222
31	μ Capricorni - -	5	17 23	6 42	101	66	18 36	7 54	284	256
Sept. 4	33 Ceti - -	6	1 32	14 34	103	109	2 49	15 51	309	329
6	μ Ceti - -	4	0 24	13 19	155	129	1 20	14 15	252	235
7	ζ Tauri - -	4	21 39	10 30	140	100	22 29	11 20	257	217
8	71 Tauri - -	6	22 41	11 28	95	55	23 40	12 26	297	257
8	θ Tauri - -	4½	23 50	12 37	116	77	0 53	13 40	277	240

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Month and Day.	Star's Name.	Magnitude.	Disappearance.				Reappearance.			
			Sidereal Time.	Mean Time.	Angle from		Sidereal Time.	Mean Time.	Angle from	
					N. Point.	Ver- tex.			N. Point.	Ver- tex.
			h m	h m	°	°	h m	h m	°	°
Sept. 8	θ' Tauri - -	4½	23 55	12 42	138	99	0 50	13 36	255	217
8	80 Tauri - -	6	0 57†	13 43	17	340				
8	81 Tauri - -	5½	1 7	13 53	29	353	1 21	14 7	5	330
8	B.A.C. 1391 -	5	1 12	13 59	168	132	1 46	14 32	226	195
8	85 Tauri - -	6	1 32	14 18	62	29	2 23	15 9	331	304
8	α Tauri - -	1	4 12	16 58	155	151	5 1	17 46	232	241
9	111 Tauri - -	6	0 4	12 47	27	347	0 19	13 2	356	316
9	115 Tauri - -	5½	1 17	14 0	145	105	2 5	14 47	239	201
27	42 Capricorni -	6	21 18	8 50	175	172	21 52	9 24	223	226
27	44 Capricorni -	6	22 3	9 35	32	37	22 20	9 52	9	16
28	58 Aquarii - -	6	22 48	10 16	101	105	0 7	11 35	307	325
28	σ Aquarii - -	4½	23 4†	10 32	203	210				
29	χ Aquarii - -	5½	22 10†	9 34	24	14				
Oct. 2	ν Piscium - -	4½	1 45†	12 57	206	209				
3	ξ' Ceti - -	4	23 41†	10 49	24	355				
4	f Tauri - -	4	7 18†	18 21	13	51				
5	48 Tauri - -	6	1 44	12 44	84	54	2 52	13 52	312	293
5	γ Tauri - -	4	4 13	15 13	70	70	5 17	16 17	320	335
9	3 Canceri - -	6	0 9†	10 54	76	42	0 58	11 43	281	244
12	VENUS - -	-	16 28	3 2	75	113	17 23†	3 57	249	286
21	29 Sagittarii -	6	18 43	4 41	87	87	20 6	6 5	277	291
Nov. 2	B.A.C. 1526 -	6	4 35	13 45	25	20	4 52	14 2	359	0
6	σ' Canceri - -	6	7 24	16 17	69	48	8 38	17 31	264	261
6	σ' Canceri - -	6	7 57†	16 51	347	333				
7	ν Leonis - -	5	9 42†	18 31	160	158				
10	γ' Virginis - -	2½	9 24	18 1	348	317	9 38	18 15	324	295
10	B.A.C. 4277 -	6	10 5	18 42	23	358	10 57	19 35	286	268
25	33 Ceti - -	6	6 4	13 43	99	136	7 3	14 41	300	339
27	μ Ceti - -	4	3 43	11 15	92	106	4 54	12 26	310	337
28	f Tauri - -	4	23 41	7 10	71	34	0 33	8 1	331	299
29	γ Tauri - -	4	21 4	4 29	103	66	21 57	5 21	288	249
29	75 Tauri - -	6	1 8	8 32	135	99	2 9	9 33	260	232
29	θ' Tauri - -	4½	1 22	8 46	27	353	1 34	8 58	7	334
29	θ' Tauri - -	4½	1 29†	8 53	17	344				
29	B.A.C. 1391 -	5	2 10	9 33	65	37	3 4	10 28	328	308
29	α Tauri - -	1	5 18	12 41	59	72	6 12	13 36	325	349
30	115 Tauri - -	5½	1 53†	9 13	13	334				
30	119 Tauri - -	5½	4 8	11 27	123	103	5 16	12 36	256	254
30	120 Tauri - -	6	4 46	12 5	101	90	6 1	13 21	276	286
Dec. 2	g Geminorum	5½	11 0	18 11	131	169	11 39	18 50	207	247

OCCULTATIONS OF PLANETS AND FIXED STARS BY THE MOON, VISIBLE AT GREENWICH.

* * The Angles are reckoned towards the right hand round the circumference of the Moon's image
as seen in an inverting telescope.

Month and Day.	Star's Name.	Magnitude.	Disappearance.				Reappearance.			
			Sidereal Time.	Mean Time.	Angle from		Sidereal Time.	Mean Time.	Angle from	
					N. Point.	Ver- tex.			N. Point.	Ver- tex.
			h m	h m	°	°	h m	h m	°	°
Dec. 3	α^1 Cancri - -	6	1 5	8 13	84	47	1 57	9 5	270	231
8	β^5 Virginis - -	6	12 26	19 13	40	30	13 35	20 21	266	270
11	γ^4 Libræ - -	5½	11 51†	18 26	340	307				
24	δ^3 Ceti - -	4	8 15†	14 0	16	54				
26	α^4 Tauri - -	6	9 33	15 9	19	59	9 44	15 20	357	37
26	γ Tauri - -	4	11 1	16 37	62	99	11 43†	17 19	312	347
27	B.A.C. 1526 -	6	0 53	6 27	73	34	1 49	7 22	318	283
28	γ^1 Orionis - -	5½	9 55	15 24	104	143	10 55	16 23	252	293
30	ζ Cancri - -	5½	6 23	11 44	48	22	7 21	12 42	298	286
30	α^1 Cancri - -	6	13 3	18 24	69	109	13 59	19 19	264	305
31	π^2 Cancri - -	6	7 22	12 39	31	6	8 12	13 29	302	289

‡ Below the horizon.

† A near approach.

* Setting.

MEAN TIME.

JANUARY.

Day.		h	m	s	Day.		h	m	s	Day.		h	m	s
1	III. Ec. R.	1	34	59.0	8	III. Oc. R.	1	42		14	I. Ec. R.	12	55	36.4
	I. Tr. I.	2	52			III. Ec. D.	2	18	23.6		III. Oc. D.	2	30	
	I. Sh. I.	3	57			I. Tr. I. †	4	52			III. Oc. R.*	6	6	
	I. Tr. E.*	5	11			III. Ec. R.*	5	36	29.8		III. Ec. D.*	6	20	29.0
	I. Sh. E.*	6	16			I. Sh. I.*	5	53		15	I. Tr. I.*	6	54	
	II. Tr. I.	14	18			I. Tr. E.*	7	12			I. Sh. I. †	7	49	
	II. Sh. I.	16	31			I. Sh. E. †	8	11			I. Tr. E.	9	13	
	II. Tr. E.	17	11			II. Tr. I.	17	5			III. Ec. R.	9	37	49.3
	II. Sh. E.	19	20			II. Sh. I.	19	9			I. Sh. E.	10	7	
2	IV. Tr. I.	0	12			II. Tr. E.	19	57			II. Tr. I.	19	54	
	I. Oc. D.	0	13			II. Sh. E.	21	56			II. Sh. I.	21	45	
	I. Ec. R.	3	33	54.8	9	I. Oc. D.	2	13			II. Tr. E.	22	45	
	IV. Tr. E. †	4	47			I. Ec. R.*	5	29	12.4	16	II. Sh. E.	0	33	
	IV. Sh. I.	10	35			I. Tr. I.	23	23			I. Oc. D.	4	15	
	IV. Sh. E.	14	38		10	I. Sh. I.	0	22			I. Ec. R. †	7	24	24.6
	I. Tr. I.	21	22			I. Tr. E.	1	42		17	I. Tr. I.	1	24	
	I. Sh. I.	22	26			I. Sh. E.	2	40			I. Sh. I.	2	17	
	I. Tr. E.	23	41			IV. Oc. D. †	8	28			I. Tr. E.	3	43	
3	I. Sh. E.	0	45			II. Oc. D.	11	18			I. Sh. E. †	4	36	
	II. Oc. D. †	8	29			IV. Oc. R.	13	2			II. Oc. D.	14	8	
	II. Ec. R.	13	25	52.4		II. Ec. R.	16	3	35.1		II. Ec. R.	18	41	22.9
	I. Oc. D.	18	43			IV. Ec. D.	18	5	18.6		I. Ec. R.	22	45	
	I. Ec. R.	22	2	43.0		I. Oc. D.	20	44		18	I. Ec. R.	1	53	10.1
4	III. Tr. I. †	8	0			IV. Ec. R.	21	49	2.4		III. Tr. I.	1	50	
	III. Tr. E.	11	38			I. Ec. R.	23	57	59.3		I. Tr. I.	19	54	
	III. Sh. I.	12	19		11	III. Tr. I.	12	24			III. Sh. I.	20	23	
	III. Sh. E.	15	49			III. Tr. E.	16	1			III. Tr. E.	20	26	
	I. Tr. I.	15	52			III. Sh. I.	16	21			IV. Tr. I.	20	33	
	I. Sh. I.	16	55			I. Tr. I.	17	53			I. Sh. I.	20	46	
	I. Tr. E.	18	11			I. Sh. I.	18	51			I. Tr. E.	22	14	
	I. Sh. E.	19	14			III. Sh. E.	19	50			I. Sh. E.	23	5	
5	II. Tr. I.	3	41			I. Tr. E.	20	12			III. Sh. E.	23	51	
	II. Sh. I.*	5	50			I. Sh. E.	21	9		19	IV. Tr. E.	1	4	
	II. Tr. E.*	6	34			II. Tr. I.*	6	29			IV. Sh. I. †	4	54	
	II. Sh. E. †	8	38		12	II. Sh. I.	8	27			IV. Sh. E.	8	50	
	I. Oc. D.	13	13			II. Tr. E.	9	21			II. Tr. I.	9	18	
	I. Ec. R.	16	31	35.5		II. Sh. E.	11	14			II. Sh. I.	11	4	
6	I. Tr. I.	10	22			I. Oc. D.	15	14			II. Tr. E.	12	9	
	I. Sh. I.	11	24			I. Ec. R.	18	26	50.3		II. Sh. E.	13	51	
	I. Tr. E.	12	41		13	I. Tr. I.	12	23			I. Oc. D.	17	15	
	I. Sh. E.	13	42			I. Sh. I.	13	20			I. Ec. R.	20	21	59.6
	II. Oc. D.	21	54			I. Tr. E.	14	43		20	I. Tr. I.	14	25	
7	II. Ec. R.	2	45	2.2		I. Sh. E.	15	38			I. Sh. I.	15	15	
	I. Oc. D. †	7	43			II. Oc. D.	0	43			I. Tr. E.	16	44	
	I. Ec. R.	11	0	22.8	14	II. Ec. R.*	5	22	49.7		I. Sh. E.	17	33	
	III. Oc. D.	22	4			I. Oc. D.	9	44		21	II. Oc. D.	3	33	

The abbreviations denote as follows :—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

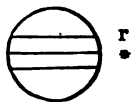
MEAN TIME.

JANUARY.

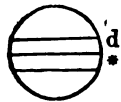
Day.		h m s	Day.		h m s	Day.		h m s
21	II. Ec. R.	8 04 15	25	I. Ec. R.	3 48 15.2	28	II. Oc. D.*	6 25
	I. Oc. D.	11 45		III. Tr. I.	21 18		II. Ec. R.	10 38 36.9
	I. Ec. R.	14 50 44.6		I. Tr. I.	21 56		I. Oc. D.	13 47
22	III. Oc. D.*	6 57		I. Sh. I.	22 42		I. Ec. R.	16 45 46.8
	I. Tr. I.	8 55	26	I. Tr. E.	0 15	29	I. Tr. I.	10 57
	I. Sh. I.	9 44		III. Sh. I.	0 25		III. Oc. D.	11 26
	I. Tr. E.	11 14		III. Tr. E.	0 53		I. Sh. I.	11 40
	I. Sh. E.	12 2		I. Sh. E.	1 0		I. Tr. E.	13 16
	III. Ec. R.	13 39 37.3		III. Sh. E.	3 52		I. Sh. E.	13 58
	II. Tr. I.	22 42		II. Tr. I.	12 7		III. Ec. R.	17 40 42.3
				II. Sh. I.	13 40	30	II. Tr. I.	1 32
23	II. Sh. I.	0 22		II. Tr. E.	14 58		II. Sh. I.	2 58
	II. Tr. E.	1 34		II. Sh. E.	16 27		II. Tr. E.	4 23
	II. Sh. E.	3 9		I. Oc. D.	19 17		II. Sh. E.*	5 45
	I. Oc. D.*	6 16		I. Ec. R.	22 17 3.1		I. Oc. D.	8 17
	I. Ec. R.	9 19 31.1					I. Ec. R.	11 14 31.6
24	I. Tr. I.	3 26	27	IV. Oc. D.†	5 3	31	I. Tr. I.†	5 28
	I. Sh. I.	4 13		IV. Oc. R.	9 30		I. Sh. I.*	6 8
	I. Tr. E.*	5 45		IV. Ec. D.	12 23 47.8		I. Tr. E.	7 47
	I. Sh. E.*	6 31		IV. Ec. R.	15 59 51.4		I. Sh. E.	8 27
	II. Oc. D.	16 59		I. Tr. I.	16 27		II. Oc. D.	19 51
	II. Ec. R.	21 19 14.6		I. Sh. I.	17 11		II. Ec. R.	23 57 9.5
25	I. Oc. D.	0 46		I. Tr. E.	18 46			
				I. Sh. E.	19 29			

Phases of the Eclipses of the Satellites for an inverting Telescope.

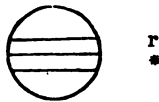
I.



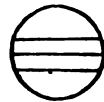
III.



II.



IV.



FEBRUARY.

Day.		h m s	Day.		h m s	Day.		h m s
1	I. Oc. D.	2 48	2	III. Sh. I.	4 27	3	I. Ec. R.	0 12 0.7
	I. Ec. R.*	5 43 14.5		III. Tr. E.†	5 22		I. Tr. I.	18 29
	I. Tr. I.	23 58		III. Sh. E.	7 54		I. Sh. I.	19 6
2	I. Sh. I.	0 37		II. Tr. I.	14 57		I. Tr. E.	20 48
	III. Tr. I.	1 48		II. Sh. I.	16 16		I. Sh. E.	21 24
	I. Tr. E.	2 17		II. Tr. E.	17 47	4	II. Oc. D.	9 17
	I. Sh. E.	2 55		II. Sh. E.	19 3		II. Ec. R.	13 16 34.7
				I. Oc. D.	21 18			

The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite. Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

FEBRUARY.

Day.		h	m	s	Day.		h	m	s	Day.		h	m	s
4	I. Oc. D.	15	49		8	II. Ec. R.	2	35	6.7	11	I. Oc. D.	17	51	
	IV. Tr. I.	17	19			I. Oc. D.	4	50			I. Ec. R.	20	35	33.7
	I. Ec. R.	18	40	43.1		I. Ec. R.	7	38	7.8	12	I. Tr. I.	15	2	
	IV. Tr. E.	21	41			I. Tr. I.	2	1			I. Sh. I.	15	30	
	IV. Sh. I.	23	12		9	I. Sh. I.	2	33			I. Tr. E.	17	21	
5	IV. Sh. E.	3	1			I. Tr. E.	4	20			I. Sh. E.	17	48	
	I. Tr. I.	13	0			I. Sh. E.	4	51			III. Oc. D.	20	27	
	I. Sh. I.	13	35			III. Tr. I.†	6	19		13	III. Ec. R.	1	42	13.5
	I. Tr. E.	15	19			III. Sh. I.	8	29			IV. Oc. D.	1	59	
	I. Sh. E.	15	53			III. Tr. E.	9	52			IV. Oc. R.†	6	16	
	III. Oc. D.	15	56			III. Sh. E.	11	55			IV. Ec. D.†	6	42	40.2
	III. Ec. R.	21	41	39.0		II. Tr. I.	17	47			II. Tr. I.	7	13	
6	II. Tr. I.	4	22			II. Sh. I.	18	52			II. Sh. I.	8	11	
	II. Sh. I.†	5	34			II. Tr. E.	20	37			II. Tr. E.	10	2	
	II. Tr. E.†	7	12			II. Sh. E.	21	38			IV. Ec. R.	10	10	27.7
	II. Sh. E.	8	21			I. Oc. D.	23	20			II. Sh. E.	10	56	
	I. Oc. D.	10	19		10	I. Ec. R.	2	6	52.5		I. Oc. D.	12	21	
	I. Ec. R.	13	9	26.5		I. Tr. I.	20	31			I. Ec. R.	15	4	15.5
7	I. Tr. I.	7	30			I. Sh. I.	21	1		14	I. Tr. I.	9	33	
	I. Sh. I.	8	4			I. Tr. E.	22	50			I. Sh. I.	9	59	
	I. Tr. E.	9	49			I. Sh. E.	23	19			I. Tr. E.	11	52	
	I. Sh. E.	10	22			II. Oc. D.	12	10			I. Sh. E.	12	17	
	II. Oc. D.	22	43		11	II. Ec. R.	15	54	34.3					

Phases of the Eclipses of the Satellites for an inverting Telescope.

I.



III.



II.



IV.



THE SATELLITES OF JUPITER

ARE INVISIBLE FROM FEBRUARY 14 UNTIL APRIL 1,

JUPITER BEING TOO NEAR TO THE SUN.

The abbreviations denote as follows :—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

APRIL.

Day.		h m s	Day.		h m s	Day.		h m s
1	II. Ec. D.	7 41 23.3	8	I. Ec. D.	9 38 54.6	15	I. Ec. D.	11 33 3.5
	I. Ec. D.	7 44 41.3		II. Ec. D.	10 19 28.6		II. Ec. D.	12 57 27.7
	I. Oc. R.	10 23		I. Oc. R.	12 25		I. Oc. R.	14 26
	II. Oc. R.	11 10		II. Oc. R.	14 2		II. Oc. R.	16 54
2	I. Sh. I.	4 57	9	I. Sh. I.	6 52	16	I. Sh. I.	8 46
	I. Tr. I.	5 21		I. Tr. I.	7 23		I. Tr. I.	9 25
	I. Sh. E.	7 14		I. Sh. E.	9 9		I. Sh. E.	11 4
	I. Tr. E.	7 39		I. Tr. E.	9 41		I. Tr. E.	11 42
3	I. Ec. D.	2 13 14.3	10	I. Ec. D.	4 7 26.4	17	I. Ec. D.	6 1 34.2
	II. Sh. I.	2 18		II. Sh. I.	4 53		II. Sh. I.	7 28
	III. Ec. D.	2 38 19.3		II. Tr. I.	5 59		II. Tr. I.	8 49
	II. Tr. I.	3 10		III. Ec. D.	6 39 13.5		I. Oc. R.	8 56
	I. Oc. R.	4 54		I. Oc. R.	6 55		II. Sh. E.	10 10
	II. Sh. E.	5 1		II. Sh. E.	7 36		III. Ec. D.	10 40 34.1
	II. Tr. E.	5 53		II. Tr. E.	8 42		II. Tr. E.	11 31
	III. Oc. R.	7 36		III. Oc. R.	12 4		III. Oc. R.	16 33
	IV. Ec. D.	13 38 51.8	11	I. Sh. I.	1 20	18	I. Sh. I.	3 15
	IV. Ec. R.	16 37 42.8		I. Tr. I.	1 53		I. Tr. I.	3 55
	IV. Oc. D.	17 29		I. Sh. E.	3 37		I. Sh. E.	5 32
	IV. Oc. R.	20 59		I. Tr. E.	4 11		I. Tr. E.	6 12
	I. Sh. I.	23 25		I. Ec. D.	22 35 58.2	19	I. Ec. D.	0 30 5.1
	I. Tr. I.	23 51		II. Ec. D.	23 37 55.4		II. Ec. D.	2 15 51.8
4	I. Sh. E.	1 43	12	IV. Sh. I.	0 27		I. Oc. R.	3 26
	I. Tr. E.	2 9		I. Oc. R.	1 25		II. Oc. R.	6 20
	I. Ec. D.	20 41 47.1		IV. Sh. E.	2 40		I. Sh. I.	21 44
	II. Ec. D.	20 59 53.0		II. Oc. R.	3 28		I. Tr. I.	22 26
	I. Oc. R.	23 24		IV. Tr. I.	5 49	20	I. Sh. E.	0 1
5	II. Oc. R.	0 36		IV. Tr. E.	9 7		I. Tr. E.	0 43
	I. Sh. I.	17 54		I. Sh. I.	19 49		IV. Ec. D.	7 57 36.9
	I. Tr. I.	18 22		I. Tr. I.	20 24		IV. Ec. R.	10 45 7.6
	I. Sh. E.	20 11		I. Sh. E.	22 6		IV. Oc. D.	14 33
	I. Tr. E.	20 40		I. Tr. E.	22 42		IV. Oc. R.	17 36
6	I. Ec. D.	15 10 20.9	13	I. Ec. D.	17 4 30.6		I. Ec. D.	18 58 36.3
	II. Sh. I.	15 36		II. Sh. I.	18 11		II. Sh. I.	20 46
	II. Tr. I.	16 35		II. Tr. I.	19 24		I. Oc. R.	21 56
	III. Sh. I.	16 45		I. Oc. R.	19 55		II. Tr. I.	22 13
	I. Oc. R.	17 54		III. Sh. I.	20 46		II. Sh. E.	23 28
	II. Sh. E.	18 19		II. Sh. E.	20 53	21	III. Sh. I.	0 48
	III. Tr. I.	18 42		II. Tr. E.	22 7		II. Tr. E.	0 55
	II. Tr. E.	19 18		III. Tr. I.	23 13		III. Tr. I.	3 43
	III. Sh. E.	20 4		III. Sh. E.	0 4		III. Sh. E.	4 5
	III. Tr. E.	22 2	14	III. Tr. E.	2 31		III. Tr. E.	6 58
7	I. Sh. I.	12 23		I. Sh. I.	14 18		I. Sh. I.	16 12
	I. Tr. I.	12 53		I. Tr. I.	14 54		I. Tr. I.	16 56
	I. Sh. E.	14 40		I. Sh. E.	16 35		I. Sh. E.	18 30
	I. Tr. E.	15 10		I. Tr. E.	17 12		I. Tr. E.	19 13

The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

APRIL.

Day.	h m s	Day.	h m s	Day.	h m s
22	I. Ec. D. 13 27 8.5	25	I. Sh. E. 7 27	28	III. Tr. I. 8 11
	II. Ec. D. 15 35 20.4		I. Tr. E. 8 14		III. Tr. E. 11 24
	I. Oc. R.† 16 26				I. Sh. I. 18 7
	II. Oc. R. 19 45	26	I. Ec. D. 2 24 8.2		IV. Sh. I. 18 45
23	I. Sh. I. 10 41		II. Ec. D. 4 53 41.5		I. Tr. I. 18 57
	I. Tr. I. 11 26		I. Oc. R. 5 26		I. Sh. E. 20 24
	I. Sh. E. 12 58		II. Oc. R. 9 10		I. Tr. E. 21 14
	I. Tr. E. 13 43		I. Sh. I. 23 38		IV. Sh. E. 21 48
24	I. Ec. D. 7 55 38.2	27	I. Tr. I. 0 27	29	IV. Tr. I. 2 46
	II. Sh. I. 10 3		I. Sh. E. 1 56		IV. Tr. E. 5 34
	I. Oc. R. 10 56		I. Tr. E. 2 44		I. Ec. D. 15 21 10.0
	II. Tr. I. 11 38		I. Ec. D. 20 52 38.4		II. Ec. D. 18 13 5.1
	II. Sh. E. 12 45		II. Sh. I. 23 20		I. Oc. R. 18 26
	II. Tr. E. 14 18		I. Oc. R. 23 56		II. Oc. R. 22 35
	III. Ec. D. 14 41 41.5	28	II. Tr. I. 1 2	30	I. Sh. I. 12 36
	III. Oc. R. 20 59		II. Sh. E. 2 2		I. Tr. I. 13 27
25	I. Sh. I. 5 10		II. Tr. E. 3 42		I. Sh. E. 14 53
	I. Tr. I. 5 57		III. Sh. I. 4 49		I. Tr. E.† 15 44
			III. Sh. E. 8 5		

Phases of the Eclipses of the Satellites for an inverting Telescope.

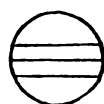
I.

d



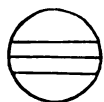
III.

d



II.

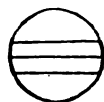
d



IV.

d

r



MAY.

Day.	h m s	Day.	h m s	Day.	h m s
1	I. Ec. D. 9 49 38.8	2	I. Sh. I. 7 4	4	I. Sh. E. 3 50
	II. Sh. I. 12 38		I. Tr. I. 7 58		I. Tr. E. 4 44
	I. Oc. R. 12 56		I. Sh. E. 9 21		I. Ec. D. 22 46 37.3
	II. Tr. I. 14 26		I. Tr. E. 10 14		
	II. Sh. E. 15 19	3	I. Ec. D. 4 18 8.2	5	II. Sh. I. 1 55
	II. Tr. E. 17 5		I. Oc. R. 7 26		I. Oc. R. 1 56
	III. Ec. D. 18 43 17.5		II. Ec. D. 7 31 23.3		II. Tr. I. 3 49
	III. Ec. R. 21 47 19.7		II. Oc. R. 12 0		II. Sh. E. 4 36
	III. Oc. D. 22 13				II. Tr. E. 6 29
2	III. Oc. R. 1 25	4	I. Sh. I. 1 33		III. Sh. I. 8 50
			I. Tr. I. 2 28		III. Sh. E. 12 5

The abbreviations denote as follows :—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

MAY.

Day.		h	m	s	Day.		h	m	s	Day.		h	m	s
5	III. Tr. I.	12	38		12	III. Sh. I.	12	52		19	II. Sh. E.	9	45	
	III. Tr. E.†	15	49			III. Sh. E.†	16	6			II. Tr. E.	11	59	
	I. Sh. I.	20	2			III. Tr. I.	17	4			III. Sh. I.	16	53	
	I. Tr. I.	20	58			III. Tr. E.	20	11			III. Sh. E.	20	6	
	I. Sh. E.	22	19			I. Sh. I.	21	56			III. Tr. I.	21	27	
	I. Tr. E.	23	15			I. Tr. I.	22	58			I. Sh. I.	23	51	
6	I. Ec. D.	17	15	8.5	13	I. Sh. E.	0	13		20	III. Tr. E.	0	32	
	I. Oc. R.	20	26			I. Tr. E.	1	15			I. Tr. I.	0	58	
	II. Ec. D.	20	50	41.7		I. Ec. D.	19	9	4.3		I. Sh. E.	2	7	
						I. Oc. R.	22	25			I. Tr. E.	3	14	
7	II. Oc. R.	1	24			II. Ec. D.	23	28	9.7		I. Ec. D.	21	2	57.9
	IV. Ec. D.	2	16	39.0	14	II. Oc. R.	4	12		21	I. Oc. R.	0	24	
	IV. Ec. R.	4	51	43.2		I. Sh. I.	16	25			II. Ec. D.	2	5	28.0
	IV. Oc. D.	11	23			I. Tr. I.	17	28			II. Oc. R.	6	59	
	IV. Oc. R.	13	53			I. Sh. E.	18	42			I. Sh. I.	18	19	
	I. Sh. I.	14	30			I. Tr. E.	19	44			I. Tr. I.	19	28	
	I. Tr. I.†	15	28								I. Sh. E.	20	36	
	I. Sh. E.	16	47		15	IV. Sh. I.	13	4			I. Tr. E.	21	44	
	I. Tr. E.	17	45			I. Ec. D.	13	37	31.5	22	I. Ec. D.†	15	31	24.6
8	I. Ec. D.	11	43	36.3		IV. Sh. E.†	15	55			I. Oc. R.	18	54	
	I. Oc. R.	14	56			I. Oc. R.	16	55			II. Sh. I.	20	22	
	II. Sh. I.†	15	13			II. Sh. I.	17	48			II. Tr. I.	22	44	
	II. Tr. I.	17	13			II. Tr. I.	19	59			II. Sh. E.	23	3	
	II. Sh. E.	17	54			II. Sh. E.	20	28		23	II. Tr. E.	1	21	
	II. Tr. E.	19	52			II. Tr. E.	22	37			III. Ec. D.	6	45	35.4
	III. Ec. D.	22	44	12.9		IV. Tr. I.	23	26			III. Ec. R.	9	46	36.4
9	III. Ec. R.	1	47	15.3	16	IV. Tr. E.	1	36			III. Oc. D.	11	24	
	III. Oc. D.	2	39			III. Ec. D.	2	45	1.2		I. Sh. I.	12	48	
	III. Oc. R.	5	48			III. Ec. R.	5	47	3.1		I. Tr. I.	13	57	
	I. Sh. I.	8	59			III. Oc. D.	7	3			III. Oc. R.†	14	28	
	I. Tr. I.	9	58			III. Oc. R.	10	9			I. Sh. E.†	15	5	
	I. Sh. E.	11	16			I. Sh. I.	10	53			I. Tr. E.	16	13	
	I. Tr. E.	12	15			I. Tr. I.	11	58			IV. Ec. D.	20	36	40.2
10	I. Ec. D.	6	12	5.3		I. Sh. E.	13	10			IV. Ec. R.	22	57	59.0
	I. Oc. R.	9	26			I. Tr. E.	14	14		24	IV. Oc. D.	7	55	
	II. Ec. D.	10	8	56.8	17	I. Ec. D.	8	6	0.0		IV. Oc. R.	9	41	
	II. Oc. R.	14	48			I. Oc. R.	11	25			I. Ec. D.	9	59	52.9
11	I. Sh. I.	3	27			II. Ec. D.	12	46	21.4		I. Oc. R.	13	24	
	I. Tr. I.	4	28			II. Oc. R.	17	35			II. Ec. D.†	15	23	36.6
	I. Sh. E.	5	44		18	I. Sh. I.	5	22			II. Oc. R.	20	22	
	I. Tr. E.	6	45			I. Tr. I.	6	28		25	I. Sh. I.	7	16	
						I. Sh. E.	7	39			I. Tr. I.	8	27	
12	I. Ec. D.	0	40	33.5		I. Tr. E.	8	44			I. Sh. E.	9	33	
	I. Oc. R.	3	56		19	I. Ec. D.	2	34	27.5		I. Tr. E.	10	43	
	II. Sh. I.	4	30			I. Oc. R.	5	55		26	I. Ec. D.	4	28	19.8
	II. Tr. I.	6	36			II. Sh. I.	7	5			I. Oc. R.	7	53	
	II. Sh. E.	7	11			II. Tr. I.	9	22						
	II. Tr. E.	9	14											

The abbreviations denote as follows :—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite. Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

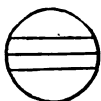
MEAN TIME.

MAY.

Day.		h m s	Day.		h m s	Day.		h m s
26	II. Sh. I.	9 40	28	I. Oc. R.	2 23	30	II. Tr. E.	4 3
	II. Tr. I.	12 6		II. Ec. D.	4 42 36.7		III. Ec. D.	10 46 13.7
	II. Sh. E.	12 20		II. Oc. R.	9 44		III. Ec. R.†	13 46 13.0
	II. Tr. E.†	14 42		I. Sh. I.	20 13		I. Sh. I. *	14 42
	III. Sh. I.	20 55		I. Tr. I.	21 26		III. Oc. D.†	15 44
27	III. Sh. E.	0 7		I. Sh. E.	22 30		I. Tr. I.	15 56
	I. Sh. I.	1 45		I. Tr. E.	23 42		I. Sh. E.	16 59
	III. Tr. I.	1 49	29	I. Ec. D.	17 25 16.5		I. Tr. E.	18 12
	I. Tr. I.	2 57		I. Oc. R.	20 52		III. Oc. R.	18 45
	I. Sh. E.	4 1		II. Sh. I.	22 57	31	I. Ec. D.	11 53 44.6
	III. Tr. E.	4 51		II. Tr. I.	1 28		I. Oc. R.†	15 22
	I. Tr. E.	5 13	30	II. Sh. E.	1 37		II. Ec. D.	18 0 42.2
	I. Ec. D.	22 56 50.1					II. Oc. R.	23 6

Phases of the Eclipses of the Satellites for an inverting Telescope.

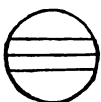
I.

d
*

III.

d r
* *

II.

d
*

IV.

d r
* *

JUNE.

Day.		h m s	Day.		h m s	Day.		h m s
1	IV. Sh. I.	7 23	3	III. Sh. E.	4 7	5	I. Ec. D.	19 19 7.3
	I. Sh. I.	9 11		I. Tr. I.	4 55		I. Oc. R.	22 49
	IV. Sh. E.	10 1		I. Sh. E.	5 56	6	II. Sh. I.	1 32
	I. Tr. I.	10 26		III. Tr. I.	6 7		II. Tr. I.	4 10
	I. Sh. E.	11 27		I. Tr. E.	7 11		II. Sh. E.	4 12
	I. Tr. E.	12 41		III. Tr. E.	9 6		II. Tr. E.	6 45
	IV. Tr. I.	19 49		I. Ec. D.	0 50 41.3		III. Ec. D.†	14 47 22.8
	IV. Tr. E.	21 1	4	I. Oc. R.	4 20		I. Sh. I.	16 36
2	I. Ec. D.	6 22 11.0		II. Ec. D.	7 19 35.5		III. Ec. R.	17 46 19.7
	I. Oc. R.	9 51		II. Ec. R.	9 53 43.6		I. Tr. I.	17 54
	II. Sh. I.	12 15		II. Oc. D.	9 54		I. Sh. E.	18 53
	II. Tr. I.†	14 50		II. Oc. R.	12 28		III. Oc. D.	20 1
	II. Sh. E.†	14 54		I. Sh. I.	22 8		I. Tr. E.	20 9
	II. Tr. E.	17 24		I. Tr. I.	23 25		III. Oc. R.	22 58
3	III. Sh. I.	0 56	5	I. Sh. E.	0 24	7	I. Ec. D.†	13 47 35.4
	I. Sh. I.	3 39		I. Tr. E.	1 40		I. Oc. R.	17 19

The abbreviations denote as follows :—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

JUNE.

Day.		h	m	s	Day.		h	m	s	Day.		h	m	s
7	II. Ec. D.	20	37	37.7	14	III. Oc. D.	0	15		20	I. Sh. E.	22	41	
	II. Ec. R.	23	11	29.8		III. Oc. R.	3	10			III. Ec. D.	22	49	46.8
	II. Ec. D.	23	15			I. Ec. D.†	15	41	26.1	21	I. Tr. E.	0	2	
8	II. Oc. R.	1	49			I. Oc. R.	19	15			III. Ec. R.	1	46	37.2
	I. Sh. I.	11	5			II. Ec. D.	23	14	23.0		III. Oc. D.	4	26	
	I. Tr. I.	12	23		15	II. Ec. R.	1	47	42.6		III. Oc. R.	7	17	
	I. Sh. E.†	13	21			II. Oc. D.	1	58			I. Ec. D.	17	35	17.0
	I. Tr. E.†	14	39			II. Oc. R.	4	31			I. Oc. R.	21	11	
9	I. Ec. D.	8	16	1.5		I. Sh. I.†	12	59		22	II. Ec. D.	1	50	58.1
	I. Oc. R.	11	48			I. Tr. I.*	14	20			II. Ec. R.	4	23	45.1
	II. Sh. I.†	14	50			I. Sh. E.†	15	15			II. Oc. D.	4	39	
	IV. Ec. D.†	14	56	49.9		I. Tr. E.	16	35			II. Oc. R.	7	10	
	IV. Ec. R.	17	2	41.1	16	I. Ec. D.	10	9	51.9		I. Sh. I.†	14	53	
	II. Sh. E.	17	29			I. Oc. R.*	13	44			I. Tr. I.	16	16	
	II. Tr. I.	17	32			II. Sh. I.	17	25			I. Sh. E.	17	9	
	II. Tr. E.	20	5			II. Sh. E.	20	4			I. Tr. E.	18	31	
10	III. Sh. I.	4	57			II. Tr. I.	20	12		23	I. Ec. D.	12	3	42.7
	I. Sh. I.	5	33			II. Tr. E.	22	45			I. Oc. R.†	15	40	
	I. Tr. I.	6	53		17	I. Sh. I.	7	28			II. Sh. I.	20	0	
	I. Sh. E.	7	50			I. Tr. I.	8	49			II. Sh. E.	22	39	
	III. Sh. E.	8	7			III. Sh. I.	8	57			II. Tr. I.	22	51	
	I. Tr. E.	9	8			I. Sh. E.	9	44		24	II. Tr. E.	1	23	
	III. Tr. I.	10	23			I. Tr. E.	11	4			I. Sh. I.	9	22	
	III. Tr. E.†	13	19			III. Sh. E.	12	7			I. Tr. I.	10	45	
11	I. Ec. D.	2	44	31.8		III. Tr. I.†	14	34			I. Sh. E.	11	38	
	I. Oc. R.	6	17			III. Tr. E.	17	28			III. Sh. I.†	12	58	
	II. Ec. D.	9	56	23.9	18	IV. Sh. I.	1	43			I. Tr. E.†	13	0	
	II. Ec. R.	12	29	59.7		IV. Sh. E.	4	6			III. Sh. E.	16	6	
	II. Oc. D.	12	37			I. Ec. D.	4	38	22.4	25	III. Tr. I.	18	43	
	II. Oc. R.†	15	10			I. Oc. R.	8	13			III. Tr. E.	21	33	
12	I. Sh. I.	0	2			II. Ec. D.	12	33	2.0		I. Ec. D.	6	32	13.5
	I. Tr. I.	1	22			II. Ec. R.†	15	6	5.4		I. Oc. R.	10	8	
	I. Sh. E.	2	18			II. Oc. D.†	15	18			II. Ec. D.†	15	9	30.1
	I. Tr. E.	3	37			II. Oc. R.	17	51			II. Ec. R.	17	42	0.7
	I. Ec. D.	21	12	57.9	19	I. Sh. I.	1	56			II. Oc. D.	17	58	
13	I. Oc. R.	0	46			I. Tr. I.	3	19		26	II. Oc. R.	20	29	
	II. Sh. I.	4	7			I. Sh. E.	4	12			I. Sh. I.	3	50	
	II. Sh. E.	6	46			I. Tr. E.	5	34			I. Tr. I.	5	14	
	II. Tr. I.	6	52			I. Ec. D.	23	6	48.5		I. Sh. E.	6	7	
	II. Tr. E.	9	25		20	I. Oc. R.	2	42			I. Tr. E.	7	29	
	I. Sh. I.	18	31			II. Sh. I.	6	43			IV. Ec. D.	9	18	5.7
	III. Ec. D.	18	48	19.7		II. Sh. E.	9	21		27	IV. Ec. R.	11	6	5.7
	I. Tr. I.	19	51			II. Tr. I.	9	32			I. Ec. D.	1	0	39.8
	I. Sh. E.	20	47			II. Tr. E.	12	4			I. Oc. R.	4	37	
	III. Ec. R.	21	46	13.7		I. Sh. I.	20	25			II. Sh. I.	9	18	
	I. Tr. E.	22	6			I. Tr. I.	21	47			II. Sh. E.	11	56	

The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.

MEAN TIME.

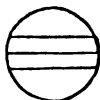
JUNE.

Day.		h	m	s	Day.		h	m	s	Day.		h	m	s
27	II. Tr. I.	†	12	10	28	III. Oc. D.	8	32		29	I. Sh. I.	16	47	
	II. Tr. E.	†	14	41		III. Oc. R.	11	21			I. Tr. I.	18	11	
	I. Sh. I.		22	19		I. Ec. D.	19	29	8.7		I. Sh. E.	19	4	
	I. Tr. I.		23	43		I. Oc. R.	23	6			I. Tr. E.	20	26	
28	I. Sh. E.		0	35	29	II. Ec. D.	4	27	23.3	30	I. Ec. D.*	13	57	34.6
	I. Tr. E.		1	58		II. Ec. R.	6	59	37.5		I. Oc. R.	17	34	
	III. Ec. D.		2	50	36.8		II. Oc. D.	7	17		II. Sh. I.	22	36	
	III. Ec. R.		5	46	22.6		II. Oc. R.	9	48					

Phases of the Eclipses of the Satellites for an inverting Telescope.

I.

d



III.

d

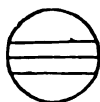
r



II.

d

r



IV.

d

r



JULY.

Day.		h	m	s	Day.		h	m	s	Day.		h	m	s
1	II. Sh. E.		1	14	4	I. Ec. D.	2	54	32.4	6	II. Oc. R.*	12	23	
	II. Tr. I.		1	29		I. Oc. R.	6	31			I. Sh. I.	18	41	
	II. Tr. E.		3	59		II. Sh. I.	†	11	54		I. Tr. I.	20	6	
	I. Sh. I.		11	16		II. Sh. E.*	14	31			I. Sh. E.	20	57	
	I. Tr. I.	†	12	40		II. Tr. I.	†	14	46		I. Tr. E.	22	20	
	I. Sh. E.*		13	32		II. Tr. E.		17	16		I. Ec. D.†	15	51	28.2
	I. Tr. E.	†	14	55		IV. Sh. I.		20	3	7	I. Oc. R.	19	28	
	III. Sh. I.		16	59		IV. Sh. E.		22	10					
	III. Sh. E.		20	7	5	I. Sh. I.		0	13	8	II. Sh. I.	1	11	
	III. Tr. I.		22	48		I. Tr. I.		1	37		II. Sh. E.	3	49	
2	III. Tr. E.		1	36		I. Sh. E.		2	29		II. Tr. I.	4	4	
	I. Ec. D.		8	26	5.9	I. Tr. E.		3	52		II. Tr. E.	6	33	
	I. Oc. R.	†	12	3		III. Ec. D.		6	51	22.3	I. Sh. I.*	13	10	
	II. Ec. D.		17	45	48.2	III. Ec. R.		9	46	2.8	I. Tr. I.*	14	34	
	II. Ec. R.		20	17	46.0	III. Oc. D.*		12	35		I. Sh. E.†	15	26	
	II. Oc. D.		20	36		III. Oc. R.†		15	21		I. Tr. E.	16	49	
	II. Oc. R.		23	6		I. Ec. D.		21	23	2.1	III. Sh. I.	21	0	
3	I. Sh. I.		5	44	6	I. Oc. R.		1	0	9	III. Sh. E.	0	7	
	I. Tr. I.		7	9		II. Ec. D.		7	3	38.7	III. Tr. I.	2	49	
	I. Sh. E.		8	0		II. Ec. R.		9	35	20.2	III. Tr. E.	5	34	
	I. Tr. E.		9	24		II. Oc. D.		9	54		I. Ec. D.	10	20	0.2
											I. Oc. R.*	13	57	

The abbreviations denote as follows :—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

JULY.

Day.		h m s	Day.		h m s	Day.		h m s
9	II. Ec. D.	20 21 56.6	16	III. Tr. I.	6 46	22	I. Sh. E.	19 14
	II. Ec. R.	22 53 21.7		III. Tr. E.	9 28		I. Tr. E.	20 33
	II. Oc. D.	23 11		I. Ec. D.*	12 13 57.1	23	III. Sh. I.	5 3
10	II. Oc. R.	1 40		I. Oc. R.†	15 49		III. Sh. E.	8 7
	I. Sh. I.	7 38		II. Ec. D.	22 57 55.9		III. Tr. I.†	10 38
	I. Tr. I.	9 3	17	II. Ec. R.	1 28 48.5		III. Tr. E.*	13 18
	I. Sh. E.	9 54		II. Oc. D.	1 44		I. Ec. D.*	14 7 57.2
	I. Tr. E.†	11 17		II. Oc. R.	4 13		I. Oc. R.	17 40
11	I. Ec. D.	4 48 27.3		I. Sh. I.	9 32	24	II. Ec. D.	1 33 46.9
	I. Oc. R.	8 25		I. Tr. I.†	10 55		II. Ec. R.	4 4 7.2
	II. Sh. I.*	14 29		I. Sh. E.*	11 48		II. Oc. D.	4 15
	II. Sh. E.	17 6		I. Tr. E.*	13 9		II. Oc. R.	6 42
	II. Tr. I.	17 21	18	I. Ec. D.	6 42 24.9		I. Sh. I.*	11 26
	II. Tr. E.	19 50		I. Oc. R.	10 17		I. Tr. I.*	12 47
12	I. Sh. I.	2 7		II. Sh. I.	17 5		I. Sh. E.*	13 42
	I. Tr. I.	3 31		II. Sh. E.	19 42		I. Tr. E.*	15 1
	I. Sh. E.	4 23		II. Tr. I.	19 53	25	I. Ec. D.	8 36 25.9
	I. Tr. E.	5 45		II. Tr. E.	22 22		I. Oc. R.*	12 8
	III. Ec. D.	10 51 59.6	19	I. Sh. I.	4 1		II. Sh. I.	19 41
	III. Ec. R.*	13 45 34.0		I. Tr. I.	5 23		II. Sh. E.	22 17
	III. Oc. D.	16 34		I. Sh. E.	6 17		II. Tr. I.	22 23
	III. Oc. R.	19 17		I. Tr. E.	7 37	26	II. Tr. E.	0 51
	I. Ec. D.	23 16 57.7		III. Ec. D.*	14 52 45.8		I. Sh. I.	5 55
13	I. Oc. R.	2 53		III. Ec. R.	17 45 13.4		I. Tr. I.	7 15
	IV. Ec. D.	3 41 57.4		III. Oc. D.	20 28		I. Sh. E.	8 11
	IV. Ec. R.	5 8 14.7		III. Oc. R.	23 9		I. Tr. E.	9 28
	II. Ec. D.	9 39 44.6	20	I. Ec. D.	1 10 56.2		III. Ec. D.	18 54 7.8
	II. Ec. R.*	12 10 53.5		I. Oc. R.	4 45		III. Ec. R.	21 45 28.0
	II. Oc. D.*	12 28		II. Ec. D.*	12 15 41.8	27	III. Oc. D.	0 18
	II. Oc. R.†	14 57		II. Ec. R.*	14 46 18.2		III. Oc. R.	2 56
	I. Sh. I.	20 35		II. Oc. D.*	15 0		I. Ec. D.	3 4 58.3
	I. Tr. I.	21 59		II. Oc. R.	17 28		I. Oc. R.	6 36
	I. Sh. E.	22 51		I. Sh. I.	22 29		II. Ec. D.*	14 51 30.9
14	I. Tr. E.	0 13		I. Tr. I.	23 51		II. Ec. R.	17 21 35.1
	I. Ec. D.	17 45 24.3	21	I. Sh. E.	0 45		II. Oc. D.	17 29
	I. Oc. R.	21 21		I. Tr. E.	2 5		II. Oc. R.	19 56
15	II. Sh. I.	3 47		IV. Sh. I.*	14 25	28	I. Sh. I.	0 23
	II. Sh. E.	6 24		IV. Sh. E.	16 14		I. Tr. I.	1 42
	II. Tr. I.	6 37		I. Ec. D.	19 39 23.6		I. Sh. E.	2 39
	II. Tr. E.	9 6		I. Oc. R.	23 13		I. Tr. E.	3 56
	I. Sh. I.†	15 4	22	II. Sh. I.	6 23		I. Ec. D.	21 33 26.4
	I. Tr. I.	16 27		II. Sh. E.	9 0	29	I. Oc. R.	1 3
	I. Sh. E.	17 20		II. Tr. I.	9 9		II. Sh. I.	8 59
	I. Tr. E.	18 41		II. Tr. E.*	11 37		II. Sh. E.*	11 35
16	III. Sh. I.	1 2		I. Sh. I.	16 58		II. Tr. I.*	11 38
	III. Sh. E.	4 7		I. Tr. I.	18 19		II. Tr. E.*	14 5

The abbreviations denote as follows :—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.

MEAN TIME.

JULY.

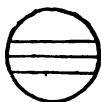
Day.		h	m	s	Day.		h	m	s	Day.		h	m	s
29	I. Sh. I.	18	52		30	III. Sh. E.*	12	7		31	II. Oc. D.	6	43	
	I. Tr. I.	20	10			III. Tr. I.*	14	25			II. Oc. R.	9	10	
	I. Sh. E.	21	8			I. Ec. D.†	16	2	1.2		I. Sh. I.*	13	20	
	IV. Ec. D.	22	9	22.9		III. Tr. E.	17	3			I. Tr. I.*	14	37	
	I. Tr. E.	22	23			I. Oc. R.	19	31			I. Sh. E.†	15	36	
	IV. Ec. R.	23	6	2.4							I. Tr. E.	16	51	
30	III. Sh. I.	9	3		31	II. Ec. D.	4	9	30.4					
						II. Ec. R.	6	39	18.5					

Phases of the Eclipses of the Satellites for an inverting Telescope.

I.

d

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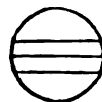
III.

d

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r

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II.

d

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r

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IV.

d

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r

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AUGUST.

Day.		h	m	s	Day.		h	m	s	Day.		h	m	s
1	I. Ec. D.†	10	30	30.9	4	I. Tr. E.	5	46		7	I. Sh. I.*	15	14	
	I. Oc. R.*	13	58			I. Ec. D.	23	27	33.8		I. Tr. I.†	16	26	
	II. Sh. I.	22	17								I. Sh. E.	17	30	
2	II. Tr. I.	0	51		5	I. Oc. R.	2	53			I. Tr. E.	18	40	
	II. Sh. E.	0	53			II. Sh. I.*	11	36			I. Ec. D.*	12	24	40.9
	II. Tr. E.	3	18			II. Tr. I.*	14	5			I. Oc. R.†	15	47	
	I. Sh. I.	7	49			II. Sh. E.*	14	11						
	I. Tr. I.	9	51			II. Tr. E.†	16	32			II. Sh. I.	0	54	
	I. Sh. E.†	10	5			I. Sh. I.	20	46			II. Tr. I.	3	17	
	I. Tr. E.*	11	18			I. Tr. I.	21	59			II. Sh. E.	3	29	
	III. Ec. D.	22	55	20.1		I. Sh. E.	23	1			II. Tr. E.	5	44	
3	III. Ec. R.	1	45	32.3	6	I. Tr. E.	0	13			I. Sh. I.†	9	43	
	III. Oc. D.	4	3			III. Sh. I.*	13	4			I. Tr. I.*	10	54	
	I. Ec. D.	4	59	4.6		III. Sh. E.†	16	6			I. Sh. E.*	11	59	
	III. Oc. R.	6	39			I. Ec. D.	17	56	10.0		I. Tr. E.*	13	7	
	I. Oc. R.	8	26			III. Tr. I.	18	7						
	II. Ec. D.	17	27	12.8		III. Tr. E.	20	42		10	III. Ec. D.	2	57	5.7
	II. Oc. R.	22	23			I. Oc. R.	21	20			III. Ec. R.	5	46	9.5
4	I. Sh. I.	2	17		7	II. Ec. D.	6	45	7.2		I. Ec. D.	6	53	16.2
	I. Tr. I.	3	32			IV. Sh. I.	8	48			III. Oc. D.	7	43	
	I. Sh. E.	4	33			IV. Sh. E.†	10	16			I. Oc. R.*	10	14	
						II. Oc. R.*	11	35			III. Oc. R.*	10	18	
											II. Ec. D.	20	2	48.5

The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

AUGUST.

Day.		h	m	s	Day.		h	m	s	Day.		h	m	s
11	II. Oc. R.	0	47		18	I. Sh. I.	6	5		25	II. Oc. R.	5	28	
	I. Sh. I.	4	11			I. Tr. I.	7	8			I. Sh. I.	8	0	
	I. Tr. I.	5	21			I. Sh. E.	8	21			I. Tr. I. †	8	54	
	I. Sh. E.	6	27			I. Tr. E. †	9	21			I. Sh. E.*	10	15	
	I. Tr. E.	7	34								I. Tr. E.*	11	8	
12	I. Ec. D.	1	21	46.6	19	I. Ec. D.	3	16	5.5	26	I. Ec. D.	5	10	31.0
	I. Oc. R.	4	42			I. Oc. R.	6	29			I. Oc. R. †	8	15	
	II. Sh. I.*	14	12			II. Sh. I. †	16	49			II. Sh. I.	19	26	
	II. Tr. I. †	16	30			II. Tr. I.	18	53			II. Tr. I.	21	14	
	II. Sh. E.	16	47			II. Sh. E.	19	24			II. Sh. E.	22	0	
	II. Tr. E.	18	56			II. Tr. E.	21	18			II. Tr. E.	23	39	
	I. Sh. I.	22	40		20	I. Sh. I.	0	34		27	I. Sh. I.	2	28	
	I. Tr. I.	23	48			I. Tr. I.	1	35			I. Tr. I.	3	21	
						I. Sh. E.	2	49			I. Sh. E.	4	43	
13	I. Sh. E.	0	55			I. Tr. E.	3	48			I. Tr. E.	5	34	
	I. Tr. E.	2	1			III. Sh. I.	21	6			I. Ec. D.	23	39	12.0
	III. Sh. I.	17	5			I. Ec. D.	21	44	44.8					
	I. Ec. D.	19	50	24.3	21	III. Sh. E.	0	6		28	III. Sh. I.	1	8	
	III. Sh. E.	20	6			I. Oc. R.	0	56			I. Oc. R.	2	42	
	III. Tr. I.	21	44			III. Tr. I.	1	17			III. Sh. E.	4	7	
	I. Oc. R.	23	9			III. Tr. E.	3	50			III. Tr. I.	4	45	
14	III. Tr. E.	0	18			II. Ec. D.*	11	56	5.4		III. Tr. E.	7	17	
	II. Ec. D. †	9	20	38.5		II. Oc. R. †	16	19			II. Ec. D.*	14	31	29.1
	II. Oc. R.*	13	58			I. Sh. I.	19	2			II. Oc. R.	18	37	
	I. Sh. I.	17	8			I. Tr. I.	20	1			I. Sh. I.	20	57	
	I. Tr. I.	18	15			I. Sh. E.	21	18			I. Tr. I.	21	47	
	I. Sh. E.	19	24			I. Tr. E.	22	15			I. Sh. E.	23	12	
	I. Tr. E.	20	28		22	I. Ec. D. †	16	13	18.7	29	I. Tr. E.	0	0	
15	I. Ec. D.*	14	18	56.7		I. Oc. R.	19	22			I. Ec. D.	18	7	47.7
	I. Oc. R.	17	35		23	II. Sh. I.	6	7			I. Oc. R.	21	8	
16	II. Sh. I.	3	30			II. Tr. I.	8	3		30	II. Sh. I. †	8	44	
	II. Tr. I.	5	41			II. Sh. E.	8	41			II. Tr. I.*	10	23	
	II. Sh. E.	6	5			II. Tr. E.*	10	28			II. Sh. E.*	11	18	
	II. Tr. E.	8	7			I. Sh. I.*	13	31			II. Tr. E.*	12	48	
	I. Sh. I.*	11	37			I. Tr. I.*	14	28			I. Sh. I.*	15	25	
	I. Tr. I.*	12	41			I. Sh. E.*	15	46			I. Tr. I.*	16	14	
	I. Sh. E.*	13	52			I. Tr. E. †	16	41			I. Sh. E.	17	40	
	I. Tr. E.*	14	55		24	IV. Sh. I.	3	16			I. Tr. E.	18	27	
17	III. Ec. D.	6	58	18.9		IV. Sh. E.	4	13		31	I. Ec. D.*	12	36	28.4
	I. Ec. D. †	8	47	33.7		I. Ec. D.*	10	41	57.5		III. Ec. D.*	15	0	43.5
	III. Ec. R.*	9	46	13.7		III. Ec. D.*	10	59	31.8		I. Oc. R.*	15	35	
	III. Oc. D.*	11	18			III. Ec. R.*	13	46	17.1		III. Ec. R.	17	46	19.0
	I. Oc. R.*	12	2			I. Oc. R.*	13	49			III. Oc. D.	18	14	
	III. Oc. R.*	13	51			III. Oc. D.*	14	49			III. Oc. R.	20	45	
	II. Ec. D.	22	38	18.9	25	III. Oc. R.	17	20						
18	II. Oc. R.	3	8			II. Ec. D.	1	13	45.4					

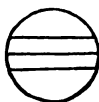
The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.

MEAN TIME.

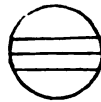
AUGUST.

Phases of the Eclipses of the Satellites for an inverting Telescope.

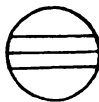
I.

d
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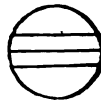
III.

d
*r
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II.

d
*

IV.

No Eclipse
of this Satellite.

SEPTEMBER.

Day.		h	m	s	Day.		h	m	s	Day.		h	m	s
1	II. Ec. D.	3	49	8.9	6	II. Sh. I. *	11	21		11	I. Oc. R.	6	12	
	II. Oc. R. †	7	46			II. Tr. I. *	12	42			III. Sh. I. *	9	11	
	I. Sh. I. *	9	54			II. Sh. E. *	13	55			III. Tr. I. *	11	30	
	I. Tr. I. *	10	40			II. Tr. E. *	15	7			III. Sh. E. *	12	8	
	I. Sh. E. *	12	9			I. Sh. I. †	17	19			III. Tr. E. *	14	1	
	I. Tr. E. *	12	53			I. Tr. I.	17	58			II. Ec. D.	19	42	11.8
2	I. Ec. D.	7	5	3.5		I. Sh. E.	19	34			II. Oc. R.	23	9	
	I. Oc. R. *	10	1			I. Tr. E.	20	11		12	I. Sh. I.	0	45	
	II. Sh. I.	22	3		7	I. Ec. D. *	14	31	6.8		I. Tr. I.	1	16	
	II. Tr. I.	23	33			I. Oc. R. †	17	20			I. Sh. E.	3	0	
3	II. Sh. E.	0	37			III. Ec. D.	19	2	9.4		I. Tr. E.	3	30	
	II. Tr. I.	1	58		8	III. Oc. R.	0	7			I. Ec. D.	21	57	8.2
	I. Sh. I.	4	22			II. Ec. D.	6	24	31.0	13	I. Oc. R.	0	38	
	I. Tr. I.	5	6			II. Oc. R. *	10	2			II. Sh. I. *	13	59	
	I. Sh. E.	6	37			I. Sh. I. *	11	48			II. Tr. I. *	14	59	
	I. Tr. E.	7	19			I. Tr. I. *	12	24			II. Sh. E. *	16	32	
4	I. Ec. D.	1	33	46.5		I. Sh. E. *	14	3			II. Tr. E. †	17	24	
	I. Oc. R.	4	27			I. Tr. E. *	14	38			I. Sh. I.	19	14	
	III. Sh. I.	5	10		9	I. Ec. D. *	8	59	43.7		I. Tr. I.	19	42	
	III. Sh. E. †	8	8			I. Oc. R. *	11	46			I. Sh. E.	21	29	
	III. Tr. I. †	8	10		10	II. Sh. I.	0	41			I. Tr. E.	21	56	
	III. Tr. E. *	10	41			II. Tr. I.	1	51		14	I. Ec. D. *	16	25	53.3
	II. Ec. D. †	17	6	50.9		II. Sh. E.	3	14			I. Oc. R.	19	4	
	II. Oc. R.	20	54			II. Tr. E.	4	16			III. Ec. D.	23	4	16.9
	I. Sh. I.	22	51			I. Sh. I.	6	16		15	III. Oc. R.	3	27	
	I. Tr. I.	23	32			I. Tr. I.	6	50			II. Ec. D. *	8	59	52.8
5	I. Sh. E.	1	6			I. Sh. E. *	8	32			II. Oc. R. *	12	16	
	I. Tr. E.	1	45			I. Tr. E. *	9	3			I. Sh. I. *	13	42	
	I. Ec. D.	20	2	24.1	11	I. Ec. D.	3	28	28.7		I. Tr. I. *	14	8	
	I. Oc. R.	22	54								I. Sh. E. *	15	57	

The abbreviations denote as follows :—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

SEPTEMBER.

Day.	h m s	Day.	h m s	Day.	h m s
15	I. Tr. E. *16 21	20	I. Sh. I. 21 8	25	III. Tr. E. 20 35
16	I. Ec. D. *10 54 32.2		I. Tr. I. 21 26	26	II. Ec. D. 0 52 57.3
	I. Oc. R. *13 30		I. Sh. E. 23 23		II. Oc. R. 3 36
17	II. Sh. I. 3 18		I. Tr. E. 23 39		I. Sh. I. 4 34
	II. Tr. I. 4 7	21	I. Ec. D. 18 20 48.4		I. Tr. I. 4 43
	II. Sh. E. 5 51		I. Oc. R. 20 49		I. Sh. E. † 6 49
	II. Tr. E. 6 32	22	III. Ec. D. 3 6 17.5		I. Tr. E. † 6 57
	I. Sh. I. * 8 11		III. Oc. R. † 6 45	27	I. Ec. D. 1 47 2.5
	I. Tr. I. * 8 34		II. Ec. D. * 11 35 15.7		I. Oc. R. 4 6
	I. Sh. E. *10 26		II. Oc. R. *14 30		II. Sh. I. 19 15
	I. Tr. E. *10 47		I. Sh. I. *15 37		II. Tr. I. 19 30
18	I. Ec. D. 5 23 19.4		I. Tr. I. *15 52		II. Sh. E. 21 47
	I. Oc. R. * 7 56		I. Sh. E. 17 52		II. Tr. E. 21 56
	III. Sh. I. *13 12	23	I. Tr. E. 18 5		I. Sh. I. 23 2
	III. Tr. I. *14 47		I. Ec. D. *12 49 29.3		I. Tr. I. 23 9
	III. Sh. E. *16 8		I. Oc. R. *15 15	28	I. Sh. E. 1 17
	III. Tr. E. † 17 19	24	II. Sh. I. 5 56		I. Tr. E. 1 22
	II. Ec. D. 22 17 33.6		II. Tr. I. † 6 23		I. Ec. D. 20 15 52.0
19	II. Oc. R. 1 23		II. Sh. E. * 8 29		I. Oc. R. 22 32
	I. Sh. I. 2 39		II. Tr. E. * 8 48	29	III. Ec. D. * 7 8 53.7
	I. Tr. I. 3 0		I. Sh. I. *10 5		III. Oc. R. *10 1
	I. Sh. E. 4 55		I. Tr. I. *10 18		II. Ec. D. *14 10 40.6
	I. Tr. E. 5 13		I. Sh. E. *12 20		II. Oc. R. *16 43
	I. Ec. D. 23 52 1.0		I. Tr. E. *12 31		I. Sh. I. † 17 31
20	I. Oc. R. 2 23	25	I. Ec. D. * 7 18 18.7		I. Tr. I. † 17 35
	II. Sh. I. *16 37		I. Oc. R. * 9 40		I. Sh. E. 19 46
	II. Tr. I. † 17 15		III. Sh. I. † 17 13		I. Tr. E. 19 48
	II. Sh. E. 19 10		III. Tr. I. 18 1	30	I. Ec. D. *14 44 34.9
	II. Tr. E. 19 40		III. Sh. E. 20 8		I. Oc. R. *16 58

Phases of the Eclipses of the Satellites for an inverting Telescope.

I.

d



III.

d



II.

d



IV.

No Eclipse
of this Satellite.

The abbreviations denote as follows :—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

OCTOBER.

Day.		h	m	s	Day.		h	m	s	Day.		h	m	s
1	II. Sh. I. *	8	34		8	I. Tr. I. *	13	44		16	I. Oc. D. *	12	39	
	II. Tr. I. *	8	38			I. Sh. I. *	13	54			I. Ec. R. *	15	14	36.9
	II. Tr. E. *	11	4			I. Tr. E. *	15	58		17	III. Tr. I.	3	46	
	II. Sh. E. *	11	7			I. Sh. E. *	16	9			III. Sh. I. †	5	19	
	I. Sh. I. *	12	0		9	I. Oc. D. *	10	55			III. Tr. E. *	6	26	
	I. Tr. I. *	12	1			I. Ec. R. *	13	19	17.2		II. Oc. D. *	7	49	
	I. Tr. E. *	14	14		10	III. Tr. I.	0	30			III. Sh. E. *	8	10	
	I. Sh. E. *	14	15			III. Sh. I.	1	17			I. Tr. I. *	9	53	
2	I. Oc. D. *	9	11			III. Tr. E.	3	8			I. Sh. I. *	10	18	
	I. Ec. R. *	11	24	5.4		III. Sh. E.	4	9			II. Ec. R. *	11	4	1.8
	III. Tr. I.	21	15			II. Oc. D. †	5	36			I. Tr. E. *	12	7	
	III. Sh. I.	21	15			I. Tr. I. *	8	10			I. Sh. E. *	12	33	
	III. Tr. E.	23	51			I. Sh. I. *	8	23		18	I. Oc. D. *	7	5	
3	III. Sh. E.	0	8			II. Ec. R. *	8	28	52.4		I. Ec. R. *	9	43	25.7
	II. Oc. D.	3	23			I. Tr. E. *	10	23		19	II. Tr. I.	2	18	
	II. Ec. R. †	5	53	48.0		I. Sh. E. *	10	38			II. Sh. I.	3	10	
	I. Tr. I. †	6	26		11	I. Oc. D. †	5	21			I. Tr. I.	4	19	
	I. Sh. I. *	6	28			I. Ec. R. *	7	48	4.1		I. Sh. I.	4	46	
	I. Tr. E. *	8	40		12	II. Tr. I.	0	1			II. Tr. E.	4	46	
	I. Sh. E. *	8	43			II. Sh. I.	0	31			II. Sh. E. †	5	41	
4	I. Oc. D.	3	37			II. Tr. E.	2	28			I. Tr. E. *	6	33	
	I. Ec. R. †	5	52	50.3		I. Tr. I.	2	36			I. Sh. E. *	7	1	
	II. Tr. I.	21	45			I. Sh. I.	2	52		20	I. Oc. D.	1	31	
	II. Sh. I.	21	53			II. Sh. E.	3	3			I. Ec. R.	4	12	20.5
5	II. Tr. E.	0	12			I. Tr. E.	4	49			III. Oc. D.	17	13	
	II. Sh. E.	0	25			I. Sh. E.	5	7			II. Oc. D.	20	56	
	I. Tr. I.	0	52			I. Oc. D.	23	47			III. Ec. R.	21	52	35.7
	I. Sh. I.	0	57		13	I. Ec. R.	2	16	56.8		I. Tr. I.	22	46	
	I. Tr. E.	3	6			III. Oc. D. *	13	56			I. Sh. I.	23	15	
	I. Sh. E.	3	12			III. Ec. R.	17	51	37.2	21	II. Ec. R.	0	21	39.7
	I. Oc. D.	22	3			II. Oc. D.	18	42			I. Tr. E.	1	0	
6	I. Ec. R.	0	21	41.0		I. Tr. I.	21	1			I. Sh. E.	1	30	
	III. Oc. D. *	10	41			I. Sh. I.	21	20			I. Oc. D.	19	57	
	III. Ec. R. *	13	50	41.0		II. Ec. R.	21	46	27.1		I. Ec. R.	22	41	8.1
	II. Oc. D. *	16	29			I. Tr. E.	23	15		22	II. Tr. I. *	15	27	
	II. Ec. R.	19	11	20.6		I. Sh. E.	23	35			II. Sh. I.	16	30	
	I. Tr. I.	19	18		14	I. Oc. D.	18	13			I. Tr. I.	17	12	
	I. Sh. I.	19	26			I. Ec. R.	20	45	42.7		I. Sh. I.	17	44	
	I. Tr. E.	21	32		15	II. Tr. I. *	13	10			II. Tr. E.	17	55	
	I. Sh. E.	21	41			II. Sh. I. *	13	51			II. Sh. E.	19	1	
7	I. Oc. D. *	16	29			I. Tr. I. *	15	27			I. Tr. E.	19	26	
	I. Ec. R.	18	50	24.9		II. Tr. E. *	15	37			I. Sh. E.	19	59	
8	II. Tr. I. *	10	54			I. Sh. I. *	15	49		23	I. Oc. D. *	14	24	
	II. Sh. I. *	11	13			II. Sh. E. †	16	23			I. Ec. R.	17	10	4.2
	II. Tr. E. *	13	20			I. Tr. E.	17	41		24	III. Tr. I. *	7	4	
	II. Sh. E. *	13	44			I. Sh. E.	18	4						

The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

OCTOBER.

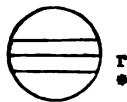
Day.	h	m	s	Day.	h	m	s	Day.	h	m	s
24	III. Sh. I. *	9	22	26	I. Sh. E.*	8	56	29	II. Sh. I.	19	8
	III. Tr. E.*	9	47		I. Oc. D.	3	17		I. Sh. I.	19	39
	II. Oc. D.*	10	4	27	I. Ec. R.*	6	7 51.5		II. Tr. E.	20	15
	I. Tr. I. *	11	38		III. Oc. D.	20	32		I. Tr. E.	21	11
	III. Sh. E.*	12	12		II. Oc. D.	23	12		II. Sh. E.	21	39
	I. Sh. I. *	12	13		III. Oc. R.	23	16		I. Sh. E.	21	54
	II. Ec. R.*	13	39 17.6		III. Ec. D.	23	17 45.0	30	I. Oc. D.	16	10
	I. Tr. E.*	13	52	28	I. Tr. I.	0	30		I. Ec. R.	19	5 38.3
	I. Sh. E.*	14	28		I. Sh. I.	1	10	31	III. Tr. I. *	10	25
25	I. Oc. D.*	8	50		III. Ec. R.	1	53 48.6		II. Oc. D.*	12	20
	I. Ec. R.*	11	38 54.8		I. Tr. E.	2	45		III. Tr. E.*	13	10
26	II. Tr. I.	4	36		II. Ec. R.	2	56 58.4		I. Tr. I. *	13	23
	II. Sh. I. *	5	49		I. Sh. E.	3	25		III. Sh. I. *	13	24
	I. Tr. I. *	6	4		I. Oc. D.	2	143		I. Sh. I. *	14	8
	I. Sh. I. *	6	41	29	I. Ec. R.	0	36 40.7		I. Tr. E.†	15	37
	II. Tr. E.*	7	4		II. Tr. I.	17	46		III. Sh. E.	16	12
	I. Tr. E.*	8	18		I. Tr. I.	18	57		II. Ec. R.	16	14 40.2
	II. Sh. E.*	8	20						I. Sh. E.	16	22

Phases of the Eclipses of the Satellites for an inverting Telescope.

I.



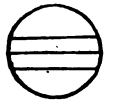
III.



II.



IV.

No Eclipse
of this Satellite.

NOVEMBER.

Day.	h	m	s	Day.	h	m	s	Day.	h	m	s
1	I. Oc. D.*	10	36	3	I. Oc. D.†	5	3	4	II. Ec. R.*	5	32 24.0
	I. Ec. R.*	13	34 30.5		I. Ec. R.*	8	3 28.7		III. Ec. R.*	5	55 43.1
2	II. Tr. I. *	6	56		III. Oc. D.	23	56		I. Oc. D.	23	30
	I. Tr. I. *	7	50	4	II. Oc. D.	1	29	5	I. Ec. R.	2	32 19.6
	II. Sh. I. *	8	27		I. Tr. I.	2	16		II. Tr. I.	20	7
	I. Sh. I. *	8	36		III. Oc. R.	2	43		I. Tr. I.	20	43
	II. Tr. E.*	9	25		I. Sh. I.	3	5		I. Sh. I.	21	34
	I. Tr. E.*	10	4		III. Ec. D.	3	20 51.8		II. Sh. I.	21	47
	I. Sh. E.*	10	51		I. Tr. E.†	4	31		II. Tr. E.	22	37
	II. Sh. E.*	10	58		I. Sh. E.*	5	20		I. Tr. E.	22	57

The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.

MEAN TIME.

NOVEMBER.

Day.	I. Sh. E.	h m s	Day.	II. Sh. E.	h m s	Day.	I. Ec. R.	h m s
5	I. Sh. E.	23 49	13	I. Oc. D.	19 45	21	I. Tr. I.	18 46
6	II. Sh. E.	0 18		I. Ec. R.	22 57 4' 2		II. Oc. D.	19 21
	I. Oc. D.	17 57	14	I. Tr. I.	16 57		I. Sh. I.	19 54
	I. Ec. R.	21 1 18' 6		II. Oc. D.	16 58		III. Tr. I.	20 54
7	III. Tr. I. *	13 50		III. Tr. I.	17 19		I. Tr. E.	21 1
	II. Oc. D.†	14 38		I. Sh. I.	17 58		I. Sh. E.	22 8
	I. Tr. I.†	15 10		I. Tr. E.	19 12		III. Tr. E.	23 46
	I. Sh. I.	16 3		III. Tr. E.	20 10	22	II. Ec. R.	0 1 29' 7
	III. Tr. E.	16 38		I. Sh. E.	20 13		III. Sh. I.	1 30
	I. Tr. E.	17 24		II. Ec. R.	21 25 45' 8		III. Sh. E.†	4 16
	III. Sh. I.	17 26		III. Sh. I.	21 28		I. Oc. D.	16 1
	I. Sh. E.	18 18		III. Sh. E.	0 14		I. Ec. R.	19 21 49' 7
	II. Ec. R.	18 50 9' 3	15	I. Oc. D.†	14 12	23	I. Tr. I. *	13 13
	III. Sh. E.	20 13		I. Ec. R.	17 25 59' 0		II. Tr. I.†	14 8
8	I. Oc. D. *	12 23	16	I. Tr. I. *	11 24		I. Sh. I.	14 22
	I. Ec. R.	15 30 12' 2		II. Tr. I. *	11 41		I. Tr. E.	15 28
9	II. Tr. I. *	9 17		I. Sh. I. *	12 27		II. Sh. I.	16 25
	I. Tr. I. *	9 36		I. Tr. E. *	13 39		I. Sh. E.	16 37
	I. Sh. I. *	10 32		II. Sh. I.†	13 46		II. Tr. E.	16 40
	II. Sh. I. *	11 6		II. Tr. E.†	14 13		II. Sh. E.	18 54
	II. Tr. E. *	11 48		I. Sh. E.	14 41	24	I. Oc. D. *	10 29
	I. Tr. E. *	11 51		II. Sh. E.	16 15		I. Ec. R.†	13 50 51' 4
	I. Sh. E. *	12 46	17	I. Oc. D. *	8 39	25	I. Tr. I. *	7 41
	II. Sh. E. *	13 37		I. Ec. R. *	11 55 0' 0		II. Oc. D. *	8 34
10	I. Oc. D. *	6 50	18	I. Tr. I. *	5 51		I. Sh. I. *	8 51
	I. Ec. R. *	9 59 12' 0		II. Oc. D. *	6 10		I. Tr. E. *	9 56
11	III. Oc. D.	3 24		I. Sh. I. *	6 56		III. Oc. D. *	10 35
	II. Oc. D.	3 48		III. Oc. D. *	6 57		I. Sh. E. *	11 6
	I. Tr. I.	4 3		I. Tr. E. *	8 6		II. Ec. R.†	13 19 23' 7
	I. Sh. I.†	5 1		I. Sh. E. *	9 10		III. Oc. R.†	13 28
	III. Oc. R. *	6 13		III. Oc. R. *	9 48		III. Ec. D.	15 30 3' 9
	I. Tr. E. *	6 18		II. Ec. R. *	10 43 36' 3		III. Ec. R.	18 1 17' 1
	I. Sh. E. *	7 15		III. Ec. D. *	11 27 12' 2	26	I. Oc. D. *	4 57
	III. Ec. D. *	7 23 46' 7		III. Ec. R.†	13 59 38' 3		I. Ec. R. *	8 19 45' 6
	II. Ec. R. *	8 7 56' 5	19	I. Oc. D.	3 6	27	I. Tr. I.	2 8
	III. Ec. R. *	9 57 25' 6		I. Ec. R. *	6 23 53' 0		I. Sh. I.	3 20
12	I. Oc. D.	1 17	20	I. Tr. I.	0 19		II. Tr. I.	3 22
	I. Ec. R.†	4 28 4' 0		II. Tr. I.	0 55		I. Tr. E.†	4 23
	II. Tr. I.	22 30		I. Sh. I.	1 25		I. Sh. E. *	5 34
	I. Tr. I.	22 30		I. Tr. E.	2 34		II. Sh. I. *	5 45
	I. Sh. I.	23 29		II. Sh. I.	3 6		II. Tr. E. *	5 55
13	II. Sh. I.	0 27		II. Tr. E.	3 26		II. Sh. E. *	8 14
	I. Tr. E.	0 45		I. Sh. E.	3 39	28	I. Oc. D.	23 24
	II. Tr. E.	1 0		II. Sh. E. *	5 35		I. Ec. R.	2 48 47' 1
	I. Sh. E.	1 44		I. Oc. D.	21 34		I. Tr. I.	20 36

The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

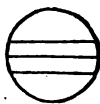
MEAN TIME.

NOVEMBER.

Day.		h	m	s	Day.		h	m	s	Day.		h	m	s
28	II. Oc. D.	21	47		29	III. Tr. E.	3	29		30	I. Sh. I.	16	18	
	I. Sh. I.	21	49			III. Sh. I. *	5	33			II. Tr. I.	16	37	
	I. Tr. E.	22	51			III. Sh. E. *	8	17			I. Tr. E.	17	19	
29	I. Sh. E.	0	3			I. Oc. D.	17	52			I. Sh. E.	18	32	
	III. Tr. I.	0	34			I. Ec. R.	21	17 43·6			II. Sh. I.	19	4	
	II. Ec. R.	2	37	20·7	30	I. Tr. I.	15	4			II. Tr. E.	19	9	
											II. Sh. E.	21	33	

Phases of the Eclipses of the Satellites for an inverting Telescope.

I.

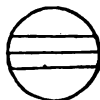


r *

III.

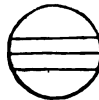
d r
* *

II.



r *

IV.

No Eclipse
of this Satellite.

DECEMBER.

Day.		h	m	s	Day.		h	m	s	Day.		h	m	s
1	I. Oc. D. *	12	20		4	II. Tr. E. *	8	25		7	I. Sh. E.	20	27	
	I. Ec. R.	15	46	46·1		II. Sh. E. *	10	53			II. Tr. E.	21	41	
2	I. Tr. I. *	9	32		5	I. Oc. D.	1	16			II. Sh. I.	21	43	
	I. Sh. I. *	10	47			I. Ec. R. †	4 44	42·8		8	II. Sh. E.	0	12	
	II. Oc. D. *	11	0			I. Tr. I.	22	27			I. Oc. D.	14	13	
	I. Tr. E. *	11	47			I. Sh. I.	23	44			I. Ec. R.	17 42	42·5	
	I. Sh. E. †	13	1		6	II. Oc. D.	0	14		9	I. Tr. I. *	11	23	
	II. Oc. R. †	13	33			I. Tr. E.	0	43			I. Sh. I. †	12	42	
	II. Ec. D. †	13	33	7·6		I. Sh. E.	1	59			II. Oc. D.	13	29	
	III. Oc. D.	14	18			II. Oc. R.	2	47			I. Tr. E.	13	39	
	II. Ec. R.	15	55	18·4		II. Ec. D.	2 51	18·5			I. Sh. E.	14	56	
	III. Oc. R.	17	13			III. Tr. I. †	4	20			II. Oc. R.	16	3	
	III. Ec. D.	19	32	51·1		II. Ec. R. *	5 13	19·6			II. Ec. D.	16	9 29·5	
	III. Ec. R.	22	2	51·2		III. Tr. E. *	7	16			III. Oc. D.	18	5	
3	I. Oc. D. *	6	48			III. Sh. I. *	9	36			II. Ec. R.	18	31 21·1	
	I. Ec. R. *	10	15	40·8		III. Sh. E. *	12	19			III. Oc. R.	21	2	
4	I. Tr. I. †	3	59			I. Oc. D.	19	44			III. Ec. D.	23 35	36·3	
	I. Sh. I. *	5	16			I. Ec. R.	23 13	39·7		10	III. Ec. R.	2	4 23·5	
	II. Tr. I. *	5	52		7	I. Tr. I.	16	55			I. Oc. D. *	8	41	
	I. Tr. E. *	6	15			I. Sh. I.	18	13			I. Ec. R. †	12 11	37·6	
	I. Sh. E. *	7	30			II. Tr. I.	19	8		11	I. Tr. I. *	5	52	
	II. Sh. I. *	8	24			I. Tr. E.	19	11						

The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.

MEAN TIME.

DECEMBER.

Day.		h	m	s	Day.		h	m	s	Day.		h	m	s
11	I. Sh. I. *	7	11		17	I. Ec. R.	14	7	34.8	24	III. Ec. R.*	10	8	20.5
	I. Tr. E.*	8	7			I. Tr. I. *	7	45			I. Oc. D.	12	30	
	II. Tr. I. *	8	25		18	I. Sh. I. *	9	6			I. Ec. R.	16	3	31.6
	I. Sh. E.*	9	25			I. Tr. E.*	10	1		25	I. Tr. I. *	9	40	
	II. Tr. E.*	10	58			II. Tr. I. *	11	0			I. Sh. I. *	11	2	
	II. Sh. I. *	11	3			I. Sh. E.*	11	20			I. Tr. E.†	11	55	
	II. Sh. E.	13	31			II. Tr. E.	13	34			I. Sh. E.	13	16	
12	I. Oc. D.	3	9			II. Sh. I.	13	42			II. Tr. I.	13	37	
	I. Ec. R.*	6	40	39.7		II. Sh. E.	16	10			II. Tr. E.	16	11	
13	I. Tr. I.	0	20		19	I. Oc. D.*	5	4			II. Sh. I.	16	21	
	I. Sh. I.	1	40			I. Ec. R.*	8	36	36.8	26	I. Sh. E.	18	49	
	I. Tr. E.	2	35		20	I. Tr. I.	2	14			I. Oc. D.*	6	59	
	II. Oc. D.	2	45			I. Sh. I.	3	35			I. Ec. R.*	10	32	33.1
	I. Sh. E.†	3	54			I. Tr. E.†	4	29		27	I. Tr. I.†	4	9	
	II. Oc. R.*	5	18			II. Oc. D.*	5	18			I. Sh. I.*	5	31	
	II. Ec. D.*	5	27	43.6		I. Sh. E.*	5	49			I. Tr. E.*	6	24	
	II. Ec. R.*	7	49	25.9		II. Oc. R.*	7	52			I. Sh. E.*	7	45	
III. Tr. I. *	8	11				II. Ec. D.*	8	4	15.3		II. Oc. D.*	7	54	
III. Tr. E.*	11	8				II. Ec. R.*	10	25	39.4		II. Ec. R.*	10	28	
III. Sh. I.	13	39				III. Tr. I.†	12	6			II. Oc. D.*	10	40	53.6
III. Sh. E.	16	21				III. Tr. E.	15	5			II. Ec. R.	13	2	0.2
I. Oc. D.	21	38				III. Sh. I.	17	41			III. Tr. I.	16	7	
14	I. Ec. R.	1	9	36.7		III. Sh. E.	20	22			III. Tr. E.	19	5	
	I. Tr. I.	18	48			I. Oc. D.	23	32			III. Sh. I.	21	44	
	I. Sh. I.	20	9		21	I. Ec. R.	3	5	33.7	28	III. Sh. E.	0	24	
	I. Tr. E.	21	4			I. Tr. I.	20	43			I. Oc. D.	1	28	
	II. Tr. I.	21	42			I. Sh. I.	22	4			I. Ec. R.*	5	1	29.7
	I. Sh. E.	22	23			I. Tr. E.	22	58			I. Tr. I.	22	38	
15	II. Tr. E.	0	15		22	I. Sh. E.	0	18		29	I. Sh. I.	0	0	
	II. Sh. I.	0	22			II. Tr. I.	0	18			I. Tr. E.	0	53	
	II. Sh. E.	2	50			II. Tr. E.	2	52			I. Sh. E.	2	14	
	I. Oc. D.	16	6			II. Sh. I.	3	1			II. Tr. I.	2	57	
	I. Ec. R.	19	38	39.7		II. Sh. E.*	5	29			II. Tr. E.*	5	31	
16	I. Tr. I.	13	17			I. Oc. D.	18	1			II. Sh. I. *	5	40	
	I. Sh. I.	14	37			I. Ec. R.	21	34	36.6		II. Sh. E.*	8	8	
	I. Tr. E.	15	32		23	I. Tr. I.	15	11			I. Oc. D.	19	57	
	II. Oc. D.	16	1			I. Sh. I.	16	33			I. Ec. R.	23	30	32.0
	I. Sh. E.	16	52			I. Tr. E.	17	27		30	I. Tr. I.	17	7	
	II. Oc. R.	18	35			II. Oc. D.	18	36			I. Sh. I.	18	29	
	II. Ec. D.	18	45	57.9		I. Sh. E.	18	47			I. Tr. E.	19	22	
	II. Ec. R.	21	7	31.0		II. Oc. R.	21	10			I. Sh. E.	20	43	
	III. Oc. D.	21	59			II. Ec. D.	21	22	33.6		II. Oc. D.	21	12	
17	III. Oc. R.	0	57			II. Ec. R.	23	43	48.9		II. Oc. R.	23	46	
	III. Ec. D.	3	38	29.6	24	III. Oc. D.	1	58		31	II. Ec. D.	23	59	16.3
	III. Ec. R.*	6	6	4.3		III. Ec. R.*	4	56			II. Ec. R.	2	20	14.3
	I. Oc. D.*	10	35			III. Ec. D.*	7	41	58.1		III. Oc. D.*	6	1	

The abbreviations denote as follows:—Ec. Eclipse. Oc. Occultation. Tr. Transit of Satellite.
Sh. Transit of Shadow. D. Disappearance. R. Reappearance. I. Ingress. E. Egress.

MEAN TIME.

DECEMBER.

Day.	h	m	s	Day.	h	m	s	Day.	h	m	s
31	III.	Oc. R.	* 9	0	31	III.	Ec. R.	14	10	16	3
	III.	Ec. D.	† 11	45	6	1	I.	Oc. D.	14	26	
							I.	Ec. R.	17	59	26.8

Phases of the Eclipses of the Satellites for an inverting Telescope.

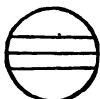
I.

r
•

III.

d r
• •

II.

d r
• •

IV.

No Eclipse
of this Satellite.

MEAN TIME.

APRIL.

CONFIGURATIONS AT 16^h 30^m.

Day of the Month.	West.	East.
1	·4 ·3	○ ·2·1
2	·4 ·3·1	○ 2·
3	2·	○ 1· ·3
4	·1	○ ·4 ·3
5		○ 1· ·2 3· ·4
6	·1 ●	2 ○ ·3· ·4
7	3· 2	1· ○ 4·
8	·3	○ ·2·1 4·
9	·3 1·	○ 2· 4·
10	2·	○ ·3 1· 4·
11	·1	○ 4· ·3
12	4·	○ 1· ·2 3·
13	4·	·1 ○ 2· 3·
14	4· ·3·	○ ○ 1·
15	4· ·3	○ ·1 ● ·2
16	·4 ·3 1·	○ 2·
17	·4 2·	○ 1· ● ·3
18	·4 ·2·1	○ ·3
19	·4	○ 1· ·2 3·
20	·1	○ 2· 3· ● ·4
21	2· 3·	○ 1· ·4
22	·1 ● 3·	○ ·1 ·4
23	·3 1·	○ 2· ·4
24	·3 ● 2·	○ ·1 4·
25	·2 ·1	○ ·3 4·
26		○ 1· ·3 4·
27	·1	○ 2· 3· 4·
28	2· 3·	○ 1·
29	3· 4· ·2	○ ● ·1
30	4· ·3 1·	○ 2·

This Table represents, at 16^h 30^m after *Mean Noon* of each day of the Month, the relative positions of the images of Jupiter and his Satellites, as they would appear (disregarding their latitudes) in an inverting telescope. Jupiter is indicated by the white circles (○) in the centre of the page; the Satellites by points. The numerals, 1, 2, 3, and 4, annexed to the points, serve to distinguish the Satellites from each other; and their positions are such as to indicate the directions of the Satellites' motions, which are in all cases to be considered as *towards the numerals*. When a Satellite is at its greatest elongation, the point is placed above or below the centre of the numeral. A white circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side of it is *on the disc of Jupiter*, and a black circle (●) that it is either *behind the disc*, or in the *shadow*, of Jupiter.

MEAN TIME.

NOVEMBER.

CONFIGURATIONS AT 10^h.

Day of the Month.	<i>West.</i>			<i>East.</i>		
1		4.	3.	1.	○	
2		4.	3.	2.	○	○ 1.
3		4.			○	1.
4		4.		1.	○	2.
5			4.		○	1. 2. 3.
6				1.	○	3.
7				2.	○	1.
8			3.	1.	○	2. 4.
9	1. ○		3.		○	4. ○ 2.
10			3.		○	1. 4.
11				1.	○	4.
12					○	1. 2. 3. 4.
13			2.	1.	○	3. 4.
14				2.	○	1. 4.
15			3.	1.	○	2.
16			3.	4.	○	1.
17			4.	3.	1.	○
18		4.		1.	○	3.
19		4.			○	1. 2. 3.
20		4.			○	3.
21		4.		2.	○	1.
22			4.	3.	1.	○
23			3.		4.	○
24				3.	2.	1.
25	2. ●				1.	○
26					○	1. 2. 3. 4.
27				1. 2.	○	3. 4.
28				2.	○	1. 3. 4.
29					1.	○
30			3.		○	1. 4.

This Table represents, at 10^h after *Mean Noon* of each day of the Month, the relative positions of the images of Jupiter and his Satellites, as they would appear (disregarding their latitudes) in an inverting telescope. Jupiter is indicated by the white circles (○) in the centre of the page; the Satellites by points. The numerals, 1, 2, 3, and 4, annexed to the points, serve to distinguish the Satellites from each other; and their positions are such as to indicate the directions of the Satellites' motions, which are in all cases to be considered as *towards the numerals*. When a Satellite is at its greatest elongation, the point is placed above or below the centre of the numeral. A white circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side of it is on the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shadow, of Jupiter.

MEAN TIME.

APRIL.

Day.	h	m		°	'
20	11	15	♂ ☾ (- - - - ♀	0	18 N.
24	10	45	♀ greatest Hel.		S.
25	19	28	♀ ☾ (- - - - ♀	7	53 N.
26	14	29	♀ greatest Hel.		N.
27	3	53	♂ ☾ (- - - - ♀	4	25 N.

MAY.

Day.	h	m		°	'
6	23	32	♀ greatest elong.	45	25 E.
7	12	58	♂ ☾ (- - - - ♀	2	56 S.
13	10	39	♀ in ☾		
14	17	33	♀ Sup. ☾ ☉		
15	1	52	♀ ☾ ♀ - - - - ♀	2	55 N.
17	14	6	♂ ☾ (- - - - ♀	1	50 N.
18	0	29	♀ in Perihelion.		
19	7	39	♂ ☾ (- - - - ♀	3	40 N.
22	9	36	♀ ☾ (- - - - ♀	6	26 N.
22	19	33	♂ ☉		
24	12	41	♂ ☾ (- - - - ♀	4	10 N.
25	2	24	♀ ☾ (- - - - ♀	6	20 N.
27	17	32	♀ ☾ κ Geminor. ✱ (5 ^m .7) E.		
28	8	22	♀ greatest Hel.		N.

JUNE.

Day.	h	m		°	'
3	16	36	♂ ☾ (- - - - ♀	2	58 S.
5	20	50	♀ ☾ κ Geminor. ✱ (2 ^m .1) E.		
6	4	30	♀ ☾ κ Geminor. ✱	0	2 N.
8	13	4	♀ ☾ ♀ - - - - ♀	1	31 N.
9	-	-	♀ at greatest brilliancy.		

JUNE.

Day.	h	m		°	'
14	7	20	♂ ☾ (- - - - ♀	2	19 N.
16	15	43	♀ greatest elong.	24	50 E.
17	7	8	♂ ☾ (- - - - ♀	4	42 N.
20	16	9	☉ enters ♊, Summer comm.		
20	19	52	♀ in ☾		
21	0	8	♂ ☾ (- - - - ♀	3	59 N.
21	16	2	♀ in ☾		
21	20	54	♀ ☾ (- - - - ♀	2	31 N.
22	8	40	♀ ☾ (- - - - ♀	2	3 N.
23	14	6	♀ Stationary.		
29	20	35	♀ Stationary.		
30	19	19	♂ ☾ (- - - - ♀	3	9 S.

JULY.

Day.	h	m		°	'
1	0	8	♀ in Aphelion.		
1	2	8	☉ in Apogee.		
4	3	12	♂ ☐ ☉		
4	11	25	♂ ☾ ☉		
11	20	33	♂ ☾ (- - - - ♀	2	36 N.
13	23	23	♀ Inf. ☾ ☉		
16	4	53	♂ ☾ (- - - - ♀	4	58 N.
16	5	29	♀ Inf. ☾ ☉		
18	13	16	♂ ☾ (- - - - ♀	3	53 N.
18	20	43	♀ ☾ (- - - - ♀	1	39 S.
19	1	36	♀ ☾ (- - - - ♀	2	57 S.
21	9	59	♀ greatest Hel.		S.
24	11	25	♀ Stationary.		
25	22	26	♀ in Aphelion.		
26	22	36	♀ ☾ ♀ - - - - ♀	3	18 N.
27	22	9	♂ in ☾		
27	23	18	♂ ☾ (- - - - ♀	3	24 S.

MEAN TIME.

AUGUST.

Day.	h	m		o	'
2	12	38	♂ Stationary.		
3	0	55	♀ greatest elong.	19	11 W.
3	9	5	♂ Stationary.		
6	18	23	♀ Stationary.		
8	4	24	♂ ☾ - - - - ♀	2	36 N.
9	9	56	♀ in ☿		
13	23	48	♀ in Perihelion.		
14	0	4	♂ ☾ ☾ - - - - ♂	4	38 N.
15	2	17	♂ ☾ ☾ - - - - ♀	3	49 N.
15	3	54	♀ ☾ ☾ - - - - ♀	2	49 S.
16	23	28	♀ ☾ ☾ - - - - ♀	2	29 N.
17	-	-	☉ eclipsed, invis. at Green ^b .		
17	12	46	♀ greatest Hel. Lat. S.		
21	-	-	♀ at greatest brilliancy.		
21	17	51	♂ ☐ ☉		
24	6	30	♂ ☾ ☾ - - - - ♀	3	33 S.
24	7	39	♀ greatest Hel. Lat. N.		
28	0	52	♀ Sup. ☾ ☉		

SEPTEMBER.

Day.	h	m		o	'
4	7	5	♂ ☾ ☾ - - - - ♀	2	22 N.
9	2	18	♂ ☾ ☾ - - - - ♂	0	17 N.
11	13	14	♂ ☾ ☾ - - - - ♀	3	42 N.
11	15	46	♂ ☾ ☾ - - - - ♂	3	53 N.
12	18	37	♀ ☾ ☾ - - - - ♀	1	11 S.
16	19	9	♀ in ☿		
17	1	54	♀ ☾ ☾ - - - - ♀	3	56 S.
20	17	37	♂ ☾ ☾ - - - - ♀	3	32 S.
22	6	32	☉ enters ♊, Autumn comm ^d .		

SEPTEMBER.

Day.	h	m		o	'
25	16	48	♀ greatest elong.	46	8 W.
26	3	2	♀ ☾ α Virginis ✱ (9 ^m .7) W.		
26	23	25	♀ in Aphelion.		
29	12	0	♂ greatest Hel. Lat. N.		

OCTOBER.

Day.	h	m		o	'
1	7	4	♂ ☾ ☾ - - - - ♀	2	3 N.
1	15	3	♂ ☾ ☉		
8	21	1	♂ ☾ ☾ - - - - ♀	3	30 N.
9	22	39	♂ ☐ ☉		
10	3	4	♂ ☾ ☾ - - - - ♂	2	58 N.
11	21	26	♀ ☾ ♀ Leonis - ✱ (2 ^m .6) E.		
12	0	0	♂ ☾ ♀ Scorpii ✱	0	1 S.
12	2	22	♀ ☾ ☾ - - - - ♀	0	57 S.
12	11	40	♀ ☾ ♀ Leonis - ✱	0	11 N.
12	18	45	♀ greatest elong.	24	45 E.
12	19	28	♀ in ☿		
13	1	51	♂ ☾ ♀ Scorpii ✱ (0 ^m .4) W.		
17	2	55	♀ ☾ ☾ - - - - ♀	8	28 S.
17	9	12	♀ greatest Hel. Lat. S.		
18	7	44	♂ ☾ ☾ - - - - ♀	3	25 S.
22	17	46	♂ Stationary.		
24	20	17	♀ Stationary.		
28	8	13	♂ ☾ ☾ - - - - ♀	1	56 N.

MEAN TIME.

NOVEMBER.

Day.	h	m	
1	4	10	♀ δ β Virginis * (6 ^m .0) W.
4	-	-	♀ Transit over disc of ☉
4	18	49	♀ Inf. δ ☉
5	2	20	♂ δ ☾ - - - - ♀ 3 17 N.
5	9	12	♀ in ☾
6	13	3	♀ δ γ Virginis * 0 12 S.
7	0	8	♀ δ γ Virginis * (2 ^m .0) W.
7	9	5	♂ δ ☾ - - - - ♂ 2 5 N.
9	23	3	♀ in Perihelion.
10	17	7	♀ δ ☾ - - - - ♀ 2 1 S.
12	16	52	♀ δ ☾ - - - - ♀ 2 59 S.
13	7	9	♂ ☐ ☉
13	15	39	♀ Stationary.
14	22	56	♂ δ ☾ - - - - ♀ 3 17 S.
15	10	58	♀ in Perihelion.
16	12	0	♂ in Perihelion.
18	7	3	♀ δ θ Virginis * (1 ^m .8) W.
20	6	56	♀ greatest Hel. Lat. N.
21	10	23	♀ greatest elong. 19 42 W.
24	13	29	♂ δ ☾ - - - - ♀ 2 9 N.
29	5	42	♂ Stationary.
29	14	13	♂ δ ☉

DECEMBER.

Day.	h	m	
2	7	35	♂ δ ☾ - - - - ♀ 3 8 N.
5	8	41	♂ δ ☾ - - - - ♂ 1 38 N.
6	14	21	♀ δ β Scorpii * (10 ^m .5) E.
7	7	20	♀ greatest Hel. Lat. N.
10	13	39	♀ δ ☾ - - - - ♀ 3 13 S.
12	12	39	♀ δ ☾ - - - - ♀ 4 40 S.
12	13	17	♂ δ ☾ - - - - ♀ 3 12 S.
12	18	25	♀ δ ♄ - - - - ♀ 1 29 S.
13	18	25	♀ in ☾
16	14	24	♀ δ γ Libræ - * (4 ^m .0) E.
21	0	28	☉ enters ♍, Winter comm.
21	23	29	♂ δ ☾ - - - - ♀ 2 37 N.
23	22	39	♀ in Aphelion.
25	21	23	♀ δ γ Scorpii - * (1 ^m .0) E.
26	2	13	♀ δ γ Scorpii * 0 3 N.
26	12	38	♂ ☐ ☉
27	2	58	♀ δ β Scorpii * (11 ^m .8) W.
28	5	39	♀ δ ψ Ophiuchi * (1 ^m .1) E.
28	10	44	♀ δ ψ Ophiuchi * 0 3 N.
29	14	47	♂ δ ☾ - - - - ♀ 3 9 N.
30	22	17	☉ in Périgee.

ELEMENTS FOR DETERMINING THE GEOCENTRIC POSITION, MAGNITUDE, AND APPEARANCE OF SATURN'S RING.

Mean Noon.	p	a'	b'	a''	b''	l	l'
1867.							
Dec. 29	+3 8.2	34.94	+14.80	23.24	+9.84	+25 3.3	+24 22.3
1868.							
Jan. 18	3 23.3	35.73	15.27	23.76	10.15	25 17.6	24 29.6
Feb. 7	3 34.5	36.78	15.79	24.46	10.50	25 26.0	24 36.7
— 27	3 41.3	38.00	16.35	25.27	10.87	25 29.0	24 43.7
Mar. 18	3 42.9	39.29	16.89	26.13	11.23	25 27.3	24 50.4
April 7	3 39.3	40.48	17.34	26.92	11.53	25 21.7	24 57.0
— 27	3 31.4	41.37	17.62	27.51	11.72	25 12.7	25 3.3
May 17	3 20.5	41.81	17.69	27.80	11.76	25 1.8	25 9.6
June 6	3 8.8	41.69	17.52	27.73	11.65	24 50.8	25 15.6
— 26	2 58.7	41.06	17.16	27.31	11.41	24 42.2	25 21.5
July 16	2 52.1	40.04	16.69	26.63	11.10	24 38.4	25 27.1
Aug. 5	2 50.3	38.80	16.20	25.81	10.77	24 40.9	25 32.6
— 25	2 53.6	37.53	15.76	24.96	10.48	24 49.7	25 37.9
Sept. 14	3 1.8	36.35	15.40	24.18	10.24	25 3.9	25 43.0
Oct. 4	3 14.3	35.38	15.15	23.52	10.08	25 21.6	25 47.9
— 24	3 29.8	34.66	15.01	23.05	9.98	25 40.2	25 52.7
Nov. 13	3 47.3	34.24	14.99	22.77	9.97	25 57.7	25 57.3
Dec. 3	4 5.5	34.14	15.07	22.70	10.02	26 12.3	26 1.6
— 23	4 23.0	34.36	15.27	22.85	10.15	26 23.0	26 5.7
1869.							
Jan. 12	+4 38.8	34.89	+15.56	23.20	+10.35	+26 29.3	+26 9.7

p denotes the inclination of the Northern semi-minor axes of the Rings to the circle of Declination ; + East, — West.

a' the apparent outer *major* axis of the outer Ring.

b' ——— outer *minor* axis of the outer Ring ; + North surface visible,
— South surface visible.

a'' ——— inner *major* axis of the inner Ring.

b'' ——— inner *minor* axis of the inner Ring.

l the elevation of the Earth above the plane of the Ring, as seen from Saturn ;
+ North, — South.

l' the elevation of the Sun above the plane of the Ring, as seen from Saturn ;
+ North, — South.

MEAN TIME OF THE GREATEST LIBRATION OF THE MOON'S APPARENT DISC.

		^h	
Jan.	3	14	N.E.
	15	16	N.W.
	31	20	N.E.
Feb.	13	0	N.W.
	28	14	N.E.
Mar.	12	6	N.W.
	26	3	N.E.
Apr.	9	2	N.W.
	21	15	N.E.
May	6	7	N.W.
	19	1	N.E.
June	1	14	N.W.
	15	22	N.E.
	28	12	N.W.
July	14	2	N.E.
	26	7	N.W.
Aug.	11	7	N.E.
	23	11	N.W.
Sept.	8	8	N.E.
	20	16	N.W.
Oct.	5	16	N.E.
	18	18	N.W.
	31	20	N.E.
Nov.	15	9	N.W.
	27	18	N.E.
Dec.	12	3	N.W.
	25	12	N.E.

The Moon's Libration is here supposed to take place in the plane of her Orbit :—and by the time of the greatest Libration of her Apparent Disc is to be understood the time about which, to an observer at the centre of the Earth, the variation of the Disc from its mean state has attained its maximum.

The right-hand column indicates the quadrant of the Moon's Disc in which additional surface is rendered visible by the Libration.

ILLUMINATED PORTION OF THE DISCS OF VENUS AND MARS.

1868.	VENUS.	MARS.
Jan. 15	0.893	1.000
Feb. 14	0.827	0.996
Mar. 15	0.738	0.989
Apr. 15	0.614	0.979
May 15	0.455	0.968
June 15	0.220	0.954
July 15	0.001	0.939
Aug. 15	0.212	0.923
Sept. 15	0.445	0.907
Oct. 15	0.601	0.896
Nov. 15	0.722	0.894
Dec. 15	0.813	0.914

The numbers given in this Table represent the versed sines of the illuminated portion of the Discs, the apparent Diameters of the Planets being considered as *unity*.

Mean Noon.		MOON'S EQUATOR.						Moon's		Motion of	
		Inclination to the Earth's Equator.		Ascending Node on the Earth's Equator to Ascending Node on Ecliptic.		Ascending Node on the Earth's Equator.		Mean Longitude.	Mean Longitude.		
		i	Δ			Ω'	l ₀				
		° ' "	diff.	° ' "	diff.	° ' "	diff.	° ' "	Days.		
Jan.	I	24 53.1	0.3	339 18.0	30.1	358 38.2	1.9	357 53.6	1	13 10.6	
	11	24 52.8	0.3	338 47.9	30.0	358 36.3	1.9	129 39.4	2	26 21.2	
	21	24 52.5	0.3	338 17.9	30.0	358 34.4	1.9	261 25.3	3	39 31.8	
	31	24 52.2	0.3	337 47.9	30.1	358 32.5	1.9	33 11.1	4	52 42.3	
Feb.	10	24 51.9	0.3	337 17.8	30.1	358 30.6	1.9	164 57.0	5	65 52.9	
	20	24 51.6	0.4	336 47.7	30.1	358 28.7	1.8	206 42.8	6	79 3.5	
Mar.	I	24 51.2	0.4	336 17.6	30.1	358 26.9	1.9	68 28.6	7	92 14.1	
	11	24 50.8	0.3	335 47.5	30.1	358 25.0	1.8	200 14.5	8	105 24.7	
Apr.									9	118 35.3	
	21	24 50.5	0.4	335 17.4	30.1	358 23.2	1.8	332 0.3	10	131 45.8	
	31	24 50.1	0.3	334 47.3	30.1	358 21.4	1.9	103 46.1	Hours.		
	10	24 49.8	0.4	334 17.2	30.1	358 19.5	1.8	235 32.0	° ' "		
	20	24 49.4	0.4	333 47.1	30.1	358 17.7	1.8	7 17.8	1	0 32.9	
									2	1 5.9	
May	30	24 49.0	0.4	333 17.0	30.1	358 15.9	1.8	139 3.7	3	1 38.8	
	10	24 48.6	0.4	332 46.9	30.1	358 14.1	1.8	270 49.5	4	2 11.8	
	20	24 48.2	0.4	332 16.8	30.2	358 12.3	1.8	42 35.3	5	2 44.7	
	30	24 47.8	0.4	331 46.6	30.1	358 10.5	1.8	174 21.2	6	3 17.6	
June									7	3 50.6	
	9	24 47.4	0.4	331 16.5	30.1	358 8.7	1.8	306 7.0	8	4 23.5	
	19	24 47.0	0.4	330 46.4	30.2	358 6.9	1.7	77 52.8	9	4 56.5	
July	29	24 46.6	0.4	330 16.2	30.2	358 5.2	1.8	209 38.7	10	5 29.4	
	9	24 46.2	0.4	329 46.0	30.2	358 3.4	1.8	341 24.5	11	6 2.4	
									12	6 35.3	
Aug.	19	24 45.8	0.5	329 15.8	30.2	358 1.6	1.7	113 10.4	13	7 8.2	
	29	24 45.3	0.4	328 45.6	30.1	357 59.9	1.7	244 56.2	14	7 41.2	
	8	24 44.9	0.5	328 15.5	30.2	357 58.2	1.8	16 42.0	15	8 14.1	
	18	24 44.4	0.5	327 45.3	30.2	357 56.4	1.7	148 27.9	16	8 47.1	
Sept.									17	9 20.0	
	28	24 43.9	0.4	327 15.1	30.2	357 54.7	1.7	280 13.7	18	9 52.9	
	7	24 43.5	0.5	326 44.9	30.2	357 53.0	1.7	51 59.6	19	10 25.9	
	17	24 43.0	0.5	326 14.7	30.2	357 51.3	1.6	183 45.4	20	10 58.8	
Oct.	27	24 42.5	0.5	325 44.5	30.3	357 49.7	1.7	315 31.2	21	11 31.8	
									22	12 4.7	
	7	24 42.0	0.5	325 14.2	30.2	357 48.0	1.7	87 17.1	23	12 37.6	
Nov.	17	24 41.5	0.5	324 44.0	30.3	357 46.3	1.7	219 2.9	24	13 10.6	
	27	24 41.0	0.5	324 13.7	30.2	357 44.6	1.6	350 48.7	Minutes.		
	6	24 40.5	0.5	323 43.5	30.3	357 43.0	1.7	122 34.6	° ' "		
									10	0 5.5	
Dec.	16	24 40.0	0.5	323 13.2	30.3	357 41.3	1.6	254 20.4	20	0 11.0	
	26	24 39.5	0.5	322 42.9	30.3	357 39.7	1.6	26 6.3	30	0 16.5	
	6	24 39.0	0.5	322 12.6	30.4	357 38.1	1.6	157 52.1	40	0 22.0	
	16	24 38.5	0.5	321 42.2	30.3	357 36.5	1.6	289 37.9	50	0 27.5	
									60	0 32.9	
	26	24 38.0	0.6	321 11.9	30.3	357 34.9	1.7	61 23.8	70	0 38.4	
	36	24 37.4		320 41.6		357 33.2		193 9.6	80	0 43.9	
									90	0 49.4	
									100	0 54.9	

MEAN TIME OF HIGH WATER AT LONDON BRIDGE,

Reckoning from Noon of each Day.

Day of the Month	JANUARY.		FEBRUARY.		MARCH.		APRIL.		MAY.		JUNE.	
1	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m
1	6 5	18 26	7 0	19 24	6 29	18 53	8 10	20 53	9 29	22 10	11 27	23 56
2	6 47	19 9	7 50	20 20	7 19	19 49	9 39	22 25	10 49	23 25	—	12 24
3	7 32	20 2	8 58	21 37	8 24	21 7	11 8	23 44	11 56	—	0 49	13 13
4	8 36	21 12	10 16	22 57	9 52	22 36	—	12 17	0 24	12 49	1 36	13 58
5	9 46	22 22	11 38	—	11 20	—	0 44	13 10	1 13	13 36	2 18	14 38
6	10 59	23 33	0 14	12 46	0 0	12 32	1 36	13 57	1 58	14 18	2 57	15 15
7	—	12 2	1 14	13 40	1 0	13 28	2 18	14 40	2 38	14 57	3 34	15 51
8	0 32	13 0	2 7	14 32	1 54	14 17	3 0	15 19	3 14	15 32	4 8	16 25
9	1 26	13 51	2 56	15 19	2 39	15 2	3 38	15 58	3 50	16 9	4 43	17 1
10	2 17	14 43	3 41	16 4	3 22	15 44	4 17	16 35	4 27	16 46	5 20	17 39
11	3 8	15 33	4 26	16 47	4 4	16 24	4 53	17 11	5 4	17 22	5 58	18 19
12	3 56	16 20	5 9	17 29	4 44	17 4	5 28	17 47	5 41	18 3	6 43	19 6
13	4 43	17 6	5 49	18 11	5 23	17 41	6 8	18 30	6 26	18 50	7 33	20 1
14	5 29	17 54	6 31	18 53	5 59	18 20	6 54	19 19	7 15	19 44	8 33	21 8
15	6 17	18 41	7 17	19 41	6 41	19 5	7 51	20 27	8 18	20 55	9 42	22 13
16	7 5	19 30	8 11	20 45	7 29	19 58	9 7	21 47	9 31	22 5	10 44	23 14
17	7 58	20 28	9 23	22 2	8 33	21 13	10 25	23 3	10 38	23 10	11 44	—
18	9 42	21 40	10 43	23 23	9 54	22 37	11 37	—	11 39	—	0 12	12 35
19	10 15	22 53	—	12 0	11 17	23 51	0 6	12 31	0 6	12 28	0 59	13 25
20	11 29	—	0 33	12 57	—	12 22	0 52	13 12	0 49	13 11	1 49	14 11
21	0 1	12 29	1 18	13 39	0 49	13 11	1 30	13 46	1 32	13 51	2 35	14 57
22	0 55	13 18	2 0	14 18	1 30	13 49	2 4	14 21	2 11	14 31	3 21	15 44
23	1 40	14 1	2 34	14 51	2 6	14 22	2 40	14 57	2 52	15 13	4 7	16 31
24	2 20	14 37	3 7	15 23	2 37	14 54	3 16	15 34	3 34	15 54	4 55	17 21
25	2 55	15 13	3 38	15 54	3 11	15 26	3 51	16 11	4 17	16 40	5 48	18 14
26	3 29	15 44	4 8	16 24	3 42	15 58	4 30	16 50	5 3	17 27	6 41	19 8
27	3 59	16 16	4 40	16 55	4 16	16 34	5 12	17 35	5 53	18 20	7 38	20 9
28	4 31	16 46	5 13	17 31	4 51	17 10	5 59	18 25	6 50	19 22	8 42	21 16
29	5 2	17 20	5 50	18 9	5 29	17 49	6 56	19 28	7 58	20 36	9 49	22 21
30	5 38	17 56	—	—	6 12	18 37	8 5	20 47	9 13	21 46	10 53	23 26
31	6 16	18 36	—	—	7 3	19 33	—	—	10 19	22 54	—	—

If the time of High Water be required, according to the *civil* mode of reckoning:

1. *For the Morning Tide*:—With the day of the month *preceding* the given date, take the time opposite thereto from the 2nd column of the month, and diminish it by 12 hours.

2. *For the Afternoon Tide*:—With the given date, take the time opposite thereto from the 1st column of the month.

Reckoning from Noon of each Day.

2. Opposite the given date, and in the 1st column, under JULY, is 3^h 10^m, which is the Time of High Water in the Afternoon.

TIME OF HIGH WATER, ON THE FULL AND CHANGE OF THE MOON,
AT THE UNDERMENTIONED PORTS AND PLACES.

PLACE.	SITUATION.	Time of High Water.	PLACE.	SITUATION.	Time of High Water.
		h m			h m
Aberdeen Bar	Scotland	1 0	Chausey Islands	France	6 9
Aberdovey	Wales	8 0	Cherbourg	France	7 49
Aberystwith	Wales	7 31	Chichester Harbour	England	11 30
Achill-beg	Ireland	5 14	Christchurch Harbour	England	9 0
Agnes (St.)	Scilly Isles	4 30	Clear Cape	Ireland	4 0
Air Point	Isle of Man	11 7	Coquet Road	England	3 0
Aldborough	England	10 45	Cordouan	France	3 37
Alderney Pier	English Channel	6 46	Cork Harbour	Ireland	5 1
Amlwch Port	Anglesea	10 30	Cornwall Cape	England	4 35
Antwerp	Belgium	4 25	Cowes	Isle of Wight	10 45
Arran Isle	Scotland	11 15	Cromarty	Scotland	11 56
Arundel Bar	England	11 35	Cuckolds Point	River Thames	1 45
Ballyshannon Bar	Ireland	5 30	Cuxhaven	Germany	1 8
Balta	Shetland	9 45	Dartmouth Harbour	England	6 16
Baltimore	Ireland	4 23	Deal	England	11 15
Banff	Scotland	0 28	Dee River (Saltney)	England	0 7
Bantry Harbour	Ireland	3 47	Devonport Dock Yard	England	5 43
Bardsey Island	Wales	7 40	Dielette Harbour	France	6 40
Barmouth	Wales	7 40	Dieppe	France	11 6
Barnstaple Bar	England	5 30	Dingle Bay	Ireland	3 51
Beachy Head	England	11 20	Donaghadee Pier	Ireland	11 13
Beaumaris	Wales	10 32	Donegal Bar	Ireland	5 5
Belfast	Ireland	10 43	Douglas Harbour	Isle of Man	11 12
Berwick	England	2 18	Dover Pier	England	11 12
Blakeney Harbour	England	6 30	Downing Bay	Ireland	5 25
Blyth	England	3 15	Sheephaven		
Bolt Head	England	5 45	Downs (Stream)	England	2 30
Bordeaux	France	6 50	Dublin Bar	Ireland	11 12
Boston	England	7 0	Dunbar	Scotland	2 8
Boulogne	France	11 25	Duncansby Head	Scotland	10 14
Brehat Island	France	5 51	Dundalk Bar	Ireland	10 56
Brest Harbour	France	3 47	Dundee	Scotland	2 32
Bridgewater Bar	England	6 50	Dungarvan	Ireland	5 12
Bridlington	England	4 39	Dungeness	England	10 45
Bridport	England	6 5	Dunkerque	France	0 8
Brielle	Holland	3 0	Eddystone	English Chan.	5 25
Brighton	England	11 15	Exmouth Bar	England	6 21
Bristol	England	7 21	Eyemouth	Scotland	2 15
Brouwershaven	Holland	2 15	Falmouth	England	4 57
Burntisland	Scotland	2 24	Fécamp	France	10 44
Caermarthen Bar	Wales	6 10	Flamboro' Head	England	4 30
Caernarvon Bar	Wales	9 33	Flatholm	England	6 54
Calais	France	11 49	Flushing	Holland	1 20
Caldy Island	Coast of Wales	6 0	Fowey	England	5 14
Calf of Man	St. Geo. Channel	11 17	Galloway (Mull)	Scotland	11 15
Cancalle Bay	France	6 20	Galway Bay	Ireland	4 35
Cantyre (Mull)	Scotland	10 35	Glenan Islands	France	3 12
Cardigan Bar	Wales	7 1	Goeree (West Gat.)	Holland	1 45
Carlingford Bar	Ireland	10 40	Granville	France	6 13
Chatham	England	1 2	Gravelines	France	12 0

TIME OF HIGH WATER, ON THE FULL AND CHANGE OF THE MOON,
AT THE UNDERMENTIONED PORTS AND PLACES.

PLACE.	SITUATION.	Time of High Water.		PLACE.	SITUATION.	Time of High Water.	
		h	m			h	m
Gravesend	England	1	10	Penzance	England	4	30
Greenock	W.C.ofScotland	0	8	Peterhead	Scotland	0	34
Guernsey Pier	English Channel	6	48	Portland Race(Stream)	England	9	15
Gunfleet Sand	River Thames	11	40	Portland(Breakwater)	England	7	1
Hartlepool	England	3	28	Port Patrick	Scotland	11	10
Harwich	England	0	6	Portsmouth Dock Yd.	England	11	41
Hastings	England	10	53	Ramsgate Harbour	England	11	44
Hâvre de Grace	France	9	51	Rathlin I., Church Bay	N. C. of Irel.	7	56
Helgoland	German Ocean	11	33	Rye Bay	England	11	20
Hellevoetsluis	Holland	2	30	Salcombe	England	5	50
Hollesley	England	11	30	Saltees	Ireland	5	40
Holyhead	Wales	10	11	Scalloway	Shetland	9	30
Holy Island Harb.	England	2	30	Scarborough	England	4	11
Honfleur Harbour	France	9	29	Scilly Islands(St.Mary)	England	4	27
Horn Point	Jutland	1	44	Selsea Bill	England	11	45
Howth Harbour	Ireland	11	9	Shannon Mouth	Ireland	3	50
Hull	England	6	29	Sheerness Dock Yard	England	0	37
Humber River Ent.	England	5	30	Shields (North)	England	3	23
Ipswich	England	0	35	Shoreham Harbour	England	11	34
Ile de Bas	France	4	49	Skerries	N. C. of Irel.	6	15
Jersey (St. Helier)	English Channel	6	25	Sligo Bay, Mullaghmore	Ireland	5	18
Kenmare River	Ireland	3	52	Southampton	England	10	30
King Road	Bristol Channel	6	56	Southwold	England	10	20
Kingstown Harb.	Ireland	11	10	Spithead (Stream)	England	9	0
Kinsale Harbour.	Ireland	4	43	Spurn Point	England	5	26
Kirkcudbright	Scotland	11	10	St. Helens Road	England	11	0
La Hougue Harb.	France	8	42	St. Ives	England	4	44
Land's End	England	4	30	St. Malo	France	6	5
Leith Pier	Scotland	2	17	Stromness	Orkneys	9	0
Lerwick Harbour	Shetland	10	30	Sunderland	England	3	22
Lewis Islands	Scotland	6	0	Swansea Bay	Wales	6	10
Liverpool	England	11	23	Tay Bar	Scotland	2	6
(St. George Pier)				Tees River Bar	England	3	45
London Bridge	River Thames	2	7	Terschelling, West	Holland	8	40
Margate Pier	England	11	40	Texel, Helder Road	Holland	9	0
Milford Haven Ent.	Wales	5	56	E. Stream			
Minehead Pier	England	6	30	Torbay	England	6	0
Montrose	Scotland	1	25	Tralee Bay	Ireland	4	3
Morlaix	N. C. of France	4	53	Tynemouth Bar	England	3	20
Needles Point	Isle of Wight	9	45	Waterford Harbour	Ireland	6	6
Newcastle	England	4	23	Wexford Harbour	Ireland	7	21
Newhaven	England	11	51	Weymouth	England	7	0
Newport	Wales	7	10	Whitby	England	3	45
Nieuport	Belgium	0	18	Wick	Scotland	11	22
Nore Light	River Thames	0	30	Wicklow	Ireland	10	29
Orfordness	England	11	15	Wisbeach	England	7	30
Ostend	Belgium	0	25	Wranger Oog	E. Friesland	12	0
Pembroke Dock Yd.	Wales	6	12	Yarmouth Roads	England	9	15
Pentland Firth	Scotland	11	0	Youghal	Ireland	5	14

**TABLE, SHOWING THE CORRECTION REQUIRED ON ACCOUNT
OF SECOND DIFFERENCES,**

In finding the Greenwich Time corresponding to a reduced Lunar Distance.

Arguments:—Approximate Interval and Difference of Proportional Logarithms.

Approximate Interval		Difference of the Proportional Logarithms in the Ephemeris.																									
		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52
h	m	h	m	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s
0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	10	2	50	0	0	0	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	3	3	3
0	20	2	40	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6
0	30	2	30	0	1	1	2	2	2	2	3	3	3	4	4	5	5	5	6	6	6	7	7	7	8	8	9
0	40	2	20	0	1	1	2	2	3	3	3	4	4	5	5	6	6	6	7	7	8	8	9	9	10	10	11
0	50	2	10	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	12	12	13
1	0	2	0	1	1	2	2	3	3	4	4	5	6	6	7	7	8	8	9	9	10	11	12	12	13	14	14
1	10	1	50	1	1	2	2	3	4	4	5	6	6	7	8	8	9	9	10	11	11	12	12	13	14	15	15
1	20	1	40	1	1	2	3	3	4	4	5	6	6	7	8	9	9	10	10	11	12	12	13	14	15	16	16
1	30	1	30	1	1	2	3	3	4	4	5	6	7	7	8	9	9	10	11	11	12	12	13	14	15	16	16
		Difference of the Proportional Logarithms in the Ephemeris.																									
		54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94	96	98	100	102	
h	m	h	m	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	
0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	10	2	50	4	4	4	4	4	4	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	7	7	
0	20	2	40	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	13	
0	30	2	30	9	10	10	10	11	11	12	12	12	13	13	13	14	14	14	15	15	16	16	16	17	17	18	
0	40	2	20	12	12	13	13	13	14	14	15	15	16	16	16	17	17	18	18	19	19	19	20	20	21	22	
0	50	2	10	14	14	15	15	16	16	17	17	18	19	19	20	20	21	21	22	22	22	23	23	24	24	25	
1	0	2	0	15	16	16	17	17	18	18	19	20	21	21	22	22	23	23	24	24	25	25	26	27	27	28	
1	10	1	50	16	17	17	18	18	19	20	21	21	22	22	23	23	24	24	25	25	26	27	27	28	29	30	
1	20	1	40	17	17	18	19	19	20	21	21	22	23	23	24	25	25	26	26	27	28	28	29	29	30	31	
1	30	1	30	17	18	18	19	19	20	21	21	22	23	23	24	24	25	26	27	27	28	29	29	30	31	32	
		Difference of the Proportional Logarithms in the Ephemeris.																									
		104	106	108	110	112	114	116	118	120	122	124	126	128	130	132	134	136	138								
h	m	h	m	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s								
0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
0	10	2	50	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	9	
0	20	2	40	13	13	13	14	14	14	14	15	15	15	15	15	15	16	16	16	16	16	16	17	17	17	17	
0	30	2	30	18	18	19	19	19	20	20	20	21	21	21	21	22	22	22	22	23	23	23	24	24	24	24	
0	40	2	20	22	23	23	24	24	25	25	25	26	26	27	27	27	28	28	28	28	29	29	29	30	30	30	
0	50	2	10	26	26	27	27	28	29	29	29	30	30	31	31	31	32	32	32	33	33	33	34	34	34	34	
1	0	2	0	29	29	30	30	31	31	32	33	33	33	34	34	35	35	36	37	37	37	37	38	38	38	38	
1	10	1	50	31	31	32	32	33	34	34	35	35	36	37	37	38	38	38	39	39	39	40	40	41	41	41	
1	20	1	40	32	33	33	34	34	35	35	36	37	37	38	38	39	39	40	40	41	41	41	42	42	42	42	
1	30	1	30	32	33	34	34	35	35	36	36	37	38	38	39	39	40	40	41	41	42	42	42	43	43	43	

The Correction is to be *added* to the approximate Greenwich Time when the Proportional Logarithms in the Ephemeris are *decreasing*, and *subtracted* when they are *increasing*.

$\Delta\lambda$, $\frac{I}{a}$, and B' ; USED IN COMPUTING THE MOON'S LIBRATION.

Argument*: $\lambda - g$.

$\lambda - g$	$\Delta\lambda$	$\frac{I}{a}$	B'	$\lambda - g$	$\Delta\lambda$	$\frac{I}{a}$	B'
0	+	0.0	+	0	+	0.6	+
1	0.0	37	0	1	0.6	53	1
2	0.0	37	0	2	0.6	54	1
3	0.1	37	0	3	0.6	55	1
4	0.1	37	0	4	0.6	56	1
5	0.1	37	0	5	0.6	57	1
6	0.1	38	0	6	0.6	58	1
7	0.1	38	0	7	0.6	59	1
8	0.2	38	0	8	0.6	61	1
9	0.2	38	0	9	0.6	62	1
10	0.2	38	0	10	0.6	63	1
11	0.2	38	0	11	0.6	65	1
12	0.3	38	0	12	0.6	67	1
13	0.3	38	0	13	0.6	69	1
14	0.3	38	0	14	0.6	71	1
15	0.3	39	0	15	0.5	73	1
16	0.3	39	0	16	0.5	75	1
17	0.3	39	0	17	0.5	77	1
18	0.4	39	0	18	0.5	79	1
19	0.4	39	0	19	0.5	82	1
20	0.4	40	0	20	0.5	85	1
21	0.4	40	0	21	0.5	88	1
22	0.4	40	0	22	0.5	92	1
23	0.4	41	0	23	0.4	96	1
24	0.5	41	0	24	0.4	100	1
25	0.5	41	0	25	0.4	104	1
26	0.5	41	0	26	0.4	109	1
27	0.5	42	0	27	0.4	115	1
28	0.5	42	0	28	0.4	121	1
29	0.5	42	0	29	0.3	128	1
30	0.5	43	0	30	0.3	135	1
31	0.5	44	0	31	0.3	144	1
32	0.6	44	0	32	0.3	154	1
33	0.6	45	0	33	0.3	166	1
34	0.6	45	0	34	0.3	180	1
35	0.6	46	0	35	0.2	196	1
36	0.6	46	0	36	0.2	215	1
37	0.6	47	0	37	0.2	239	1
38	0.6	47	0	38	0.1	268	1
39	0.6	48	0	39	0.1	306	1
40	0.6	49	0	40	0.1	357	1
41	0.6	49	1	41	0.1	428	1
42	0.6	50	1	42	0.1	535	1
43	0.6	51	1	43	0.0	713	1
44	0.6	52	1	44	0.0	1069	1
45	+	+	+	45	+	+	+

* When $\lambda - g$ exceeds 180° , take the excess for the Argument, and change the signs of $\frac{I}{a}$ and B' .

TABLES.

$\frac{1}{a'}$ and B' ; USED IN COMPUTING THE MOON'S LIBRATION.

Argument: $\lambda - \varpi$.

$\Delta \lambda$	$\frac{1}{a'}$	B'	$\lambda - \varpi$	$\Delta \lambda$	$\frac{1}{a'}$	B'
		diff.				diff.
- 0° 0	∞	+ 1 32° 1'	135	- 0° 6	53	+ 1 5° 2'
0° 0	- 21 38	1 32° 1'	136	0° 6	52	1 4° 1'
0° 0	1069	1 32° 1'	137	0° 6	51	1 2° 9'
0° 1	713	1 32° 0'	138	0° 6	50	1 1° 7'
0° 1	535	1 31° 9'	139	0° 6	49	1 0° 5'
0° 1	428	1 31° 8'	140	0° 6	49	0 59° 2'
0° 1	357	1 31° 6'	141	0° 6	48	0 58° 0'
0° 1	306	1 31° 5'	142	0° 6	47	0 56° 8'
0° 2	268	1 31° 3'	143	0° 6	47	0 55° 5'
0° 2	239	1 31° 0'	144	0° 6	46	0 54° 2'
0° 2	215	1 30° 8'	145	0° 6	46	0 52° 8'
0° 2	196	1 30° 5'	146	0° 6	45	0 51° 6'
0° 3	180	1 30° 1'	147	0° 6	45	0 50° 2'
0° 3	166	1 29° 8'	148	0° 6	44	0 48° 9'
0° 3	154	1 29° 4'	149	0° 5	44	0 47° 5'
0° 3	144	1 29° 0'	150	0° 5	43	0 46° 1'
0° 3	135	1 28° 6'	151	0° 5	43	0 44° 7'
0° 3	128	1 28° 1'	152	0° 5	42	0 43° 3'
0° 4	121	1 27° 7'	153	0° 5	42	0 41° 9'
0° 4	115	1 27° 2'	154	0° 5	41	0 40° 5'
0° 4	109	1 26° 6'	155	0° 5	41	0 39° 0'
0° 4	104	1 26° 0'	156	0° 4	41	0 37° 5'
0° 4	100	1 25° 4'	157	0° 4	41	0 36° 0'
0° 4	96	1 24° 8'	158	0° 4	40	0 34° 5'
0° 5	92	1 24° 2'	159	0° 4	40	0 33° 0'
0° 5	88	1 23° 5'	160	0° 4	40	0 31° 5'
0° 5	85	1 22° 8'	161	0° 4	39	0 30° 0'
0° 5	82	1 22° 1'	162	0° 3	39	0 28° 5'
0° 5	79	1 21° 4'	163	0° 3	39	0 27° 0'
0° 5	77	1 20° 6'	164	0° 3	39	0 25° 4'
0° 5	75	1 19° 8'	165	0° 3	39	0 23° 9'
0° 5	73	1 19° 0'	166	0° 3	38	0 22° 3'
0° 6	71	1 18° 2'	167	0° 3	38	0 20° 7'
0° 6	69	1 17° 3'	168	0° 2	38	0 19° 2'
0° 6	67	1 16° 4'	169	0° 2	38	0 17° 6'
0° 6	65	1 15° 5'	170	0° 2	38	0 16° 0'
0° 6	63	1 14° 6'	171	0° 2	38	0 14° 4'
0° 6	62	1 13° 6'	172	0° 2	38	0 12° 8'
0° 6	61	1 12° 6'	173	0° 1	38	0 11° 2'
0° 6	59	1 11° 6'	174	0° 1	38	0 9° 6'
0° 6	58	1 10° 6'	175	0° 1	37	0 8° 0'
0° 6	57	1 9° 6'	176	0° 1	37	0 6° 4'
0° 6	56	1 8° 5'	177	0° 1	37	0 4° 8'
0° 6	55	1 7° 4'	178	0° 0	37	0 3° 2'
0° 6	54	1 6° 3'	179	0° 0	37	0 1° 6'
- 0° 6	- 53	+ 1 5° 2'	180	- 0° 0	- 37	+ 0 0° 0'

$\lambda - \varpi$ exceeds 180° , take the excess for the Argument, and change the signs of $\frac{1}{a'}$ and B' .

TABLES FOR DETERMINING THE LATITUDE BY OBSERVATIONS
OF THE POLE STAR OUT OF THE MERIDIAN.

TABLE I.

Containing the *First* Correction.*Argument*:—Sidereal Time of Observation.

Sidereal Time.	Correction.	Sidereal Time.	Sidereal Time.	Correction.	Sidereal Time.
h m	° ' "	h m	h m	° ' "	h m
0 0	— 1 20 7 +	12 0	6 0	— 0 25 16 +	18 0
10	1 21 8	10	10	0 21 44	10
20	1 22 1	20	20	0 18 11	20
30	1 22 43	30	30	0 14 35	30
40	1 23 17	40	40	0 10 58	40
50	1 23 41	50	50	0 7 19	50
1 0	1 23 55	13 0	7 0	— 0 3 40 +	19 0
10	1 24 0	10	10	0 0 0	10
20	1 23 55	20	20	+ 0 3 40 —	20
30	1 23 41	30	30	0 7 19	30
40	1 23 17	40	40	0 10 58	40
50	1 22 43	50	50	0 14 35	50
2 0	1 22 1	14 0	8 0	0 18 11	20 0
10	1 21 8	10	10	0 21 44	10
20	1 20 7	20	20	0 25 16	20
30	1 18 56	30	30	0 28 44	30
40	1 17 36	40	40	0 32 9	40
50	1 16 8	50	50	0 35 30	50
3 0	1 14 31	15 0	9 0	0 38 47	21 0
10	1 12 45	10	10	0 42 0	10
20	1 10 51	20	20	0 45 8	20
30	1 8 49	30	30	0 48 11	30
40	1 6 39	40	40	0 51 8	40
50	1 4 21	50	50	0 54 0	50
4 0	1 1 56	16 0	10 0	0 56 45	22 0
10	0 59 24	10	10	0 59 24	10
20	0 56 45	20	20	1 1 56	20
30	0 54 0	30	30	1 4 21	30
40	0 51 8	40	40	1 6 39	40
50	0 48 11	50	50	1 8 49	50
5 0	0 45 8	17 0	11 0	1 10 51	23 0
10	0 42 0	10	10	1 12 45	10
20	0 38 47	20	20	1 14 31	20
30	0 35 30	30	30	1 16 8	30
40	0 32 9	40	40	1 17 36	40
50	0 28 44	50	50	1 18 56	50
6 0	— 0 25 16 +	18 0	12 0	+ 1 20 7 —	24 0

TABLE II.

Containing the *Second* Correction. (*always to be added.*)*Arguments:—Sidereal Time and Altitude.*

Sidereal Time.	Altitude.								Sidereal Time.
	° 0	° 5	° 10	° 15	° 20	° 25	° 30	° 35	
h m	' "	' "	' "	' "	' "	' "	' "	' "	h m
0 0	0 0	0 0	0 1	0 1	0 2	0 3	0 3	0 4	12 0
0 30	0 0	0 0	0 0	0 0	0 1	0 1	0 1	0 1	30
1 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	13 0
1 30	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	30
2 0	0 0	0 0	0 1	0 1	0 1	0 1	0 2	0 2	14 0
2 30	0 0	0 1	0 1	0 2	0 3	0 3	0 4	0 5	30
3 0	0 0	0 1	0 2	0 4	0 5	0 6	0 8	0 9	15 0
3 30	0 0	0 2	0 4	0 5	0 7	0 9	0 12	0 14	30
4 0	0 0	0 3	0 5	0 8	0 10	0 13	0 16	0 20	16 0
4 30	0 0	0 3	0 6	0 10	0 13	0 17	0 21	0 25	30
5 0	0 0	0 4	0 8	0 12	0 16	0 20	0 25	0 31	17 0
5 30	0 0	0 4	0 9	0 14	0 18	0 24	0 29	0 35	30
6 0	0 0	0 5	0 10	0 15	0 20	0 26	0 32	0 39	18 0
6 30	0 0	0 5	0 11	0 16	0 22	0 28	0 34	0 42	30
7 0	0 0	0 5	0 11	0 16	0 22	0 29	0 36	0 43	19 0
7 30	0 0	0 5	0 11	0 16	0 22	0 28	0 35	0 43	30
8 0	0 0	0 5	0 10	0 16	0 21	0 27	0 34	0 41	20 0
8 30	0 0	0 5	0 10	0 15	0 20	0 25	0 31	0 38	30
9 0	0 0	0 4	0 9	0 13	0 18	0 23	0 28	0 34	21 0
9 30	0 0	0 4	0 7	0 11	0 15	0 19	0 24	0 29	30
10 0	0 0	0 3	0 6	0 9	0 12	0 16	0 19	0 23	22 0
10 30	0 0	0 2	0 4	0 7	0 9	0 12	0 15	0 18	30
11 0	0 0	0 2	0 3	0 5	0 6	0 8	0 10	0 12	23 0
11 30	0 0	0 1	0 2	0 3	0 4	0 5	0 6	0 8	30
12 0	0 0	0 0	0 1	0 1	0 2	0 3	0 3	0 4	24 0

TABLE III. (*for 1868.*)Containing the *Third* Correction. (*always to be added.*)*Arguments:—Sidereal Time and Date.*

Sidereal Time.	Jan. 1.	Feb. 1.	March 1.	April 1.	May 1.	June 1.	July 1.
h	' "	' "	' "	' "	' "	' "	' "
0	1 41	1 38	1 31	1 21	1 13	1 9	1 10
2	1 30	1 32	1 28	1 20	1 11	1 3	0 59
4	1 10	1 17	1 18	1 14	1 6	0 56	0 49
6	0 48	0 57	1 3	1 4	0 59	0 50	0 41
8	0 29	0 38	0 47	0 53	0 53	0 47	0 38
10	0 18	0 26	0 35	0 44	0 48	0 47	0 42
12	0 19	0 22	0 29	0 39	0 47	0 51	0 50
14	0 30	0 28	0 32	0 40	0 49	0 57	1 1
16	0 50	0 43	0 42	0 46	0 54	1 4	1 11
18	1 12	1 3	0 57	0 56	1 1	1 10	1 19
20	1 31	1 22	1 13	1 7	1 7	1 13	1 22
22	1 42	1 34	1 25	1 16	1 12	1 13	1 18
24	1 41	1 38	1 31	1 21	1 13	1 9	1 10

TABLE II.

Containing the *Second* Correction. (*always to be added.*)*Arguments:—Sidereal Time and Altitude.*

Sidereal Time.	Altitude.								Sidereal Time.
	° 35	° 40	° 45	° 50	° 55	° 60	° 65	° 70	
h m	' "	' "	' "	' "	' "	' "	' "	' "	h m
0 0	0 4	0 5	0 6	0 7	0 8	0 10	0 12	0 15	12 0
30	0 1	0 2	0 2	0 2	0 3	0 3	0 4	0 5	30
1 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	13 0
30	0 0	0 0	0 0	0 1	0 1	0 1	0 1	0 1	30
2 0	0 2	0 2	0 3	0 3	0 4	0 5	0 6	0 8	14 0
30	0 5	0 6	0 7	0 9	0 10	0 13	0 15	0 20	30
3 0	0 9	0 11	0 13	0 16	0 19	0 23	0 28	0 36	15 0
30	0 14	0 17	0 20	0 24	0 29	0 35	0 43	0 56	30
4 0	0 20	0 24	0 28	0 33	0 40	0 50	1 0	1 17	16 0
30	0 25	0 30	0 36	0 43	0 52	1 3	1 17	1 39	30
5 0	0 31	0 37	0 44	0 52	1 3	1 16	1 34	2 0	17 0
30	0 35	0 42	0 51	1 0	1 12	1 28	1 48	2 19	30
6 0	0 39	0 47	0 56	1 7	1 20	1 37	2 0	2 34	18 0
30	0 42	0 50	1 0	1 11	1 25	1 43	2 8	2 44	30
7 0	0 43	0 52	1 1	1 13	1 28	1 47	2 12	2 49	19 0
30	0 43	0 51	1 1	1 13	1 27	1 46	2 11	2 48	30
8 0	0 41	0 49	0 59	1 10	1 24	1 42	2 6	2 41	20 0
30	0 38	0 46	0 54	1 5	1 18	1 34	1 57	2 29	30
9 0	0 34	0 41	0 48	0 58	1 9	1 24	1 44	2 13	21 0
30	0 29	0 35	0 41	0 49	0 59	1 12	1 29	1 54	30
10 0	0 23	0 28	0 33	0 40	0 48	0 58	1 12	1 32	22 0
30	0 18	0 21	0 25	0 30	0 36	0 44	0 55	1 10	30
11 0	0 12	0 15	0 18	0 21	0 25	0 31	0 38	0 49	23 0
30	0 8	0 9	0 11	0 13	0 16	0 19	0 24	0 30	30
12 0	0 4	0 5	0 6	0 7	0 8	0 10	0 12	0 15	24 0

TABLE III. (*for 1868.*)Containing the *Third* Correction. (*always to be added.*)*Arguments:—Sidereal Time and Date.*

Sidereal Time.	July 1.	Aug. 1.	Sept. 1.	Oct. 1.	Nov. 1.	Dec. 1.	Dec. 31.
h	' "	' "	' "	' "	' "	' "	' "
0	1 10	1 17	1 27	1 38	1 49	1 57	2 0
2	0 59	1 1	1 7	1 16	1 28	1 38	1 46
4	0 49	0 45	0 45	0 50	0 59	1 10	1 20
6	0 41	0 33	0 28	0 27	0 31	0 38	0 48
8	0 38	0 28	0 19	0 12	0 10	0 13	0 20
10	0 42	0 32	0 21	0 11	0 3	0 0	0 3
12	0 50	0 43	0 33	0 22	0 11	0 3	0 0
14	1 1	0 59	0 53	0 44	0 32	0 22	0 14
16	1 11	1 15	1 15	1 10	1 1	0 50	0 40
18	1 19	1 27	1 32	1 33	1 29	1 22	1 12
20	1 22	1 32	1 41	1 48	1 50	1 47	1 40
22	1 18	1 28	1 39	1 49	1 57	2 0	1 57
24	1 10	1 17	1 27	1 38	1 49	1 57	2 0

TABLE
For converting INTERVALS of MEAN SOLAR Time into Equivalent INTERVALS
of SIDEREAL Time.

HOURS.				MINUTES.				SECONDS.							
Hours of Mean Time.	Equivalents in Sidereal Time.			Minutes of Mean Time.	Equivalents in Sidereal Time.		Minutes of Mean Time.	Equivalents in Sidereal Time.		Seconds of Mean Time.	Equivalents in Sidereal Time.		Seconds of Mean Time.	Equivalents in Sidereal Time.	
	h	m	s		m	s		m	s		s		s		s
1	1	0	9.8565	1	1	0.1643	31	31	5.0925	1	1.0027	31	31.0849		
2	2	0	19.7130	2	2	0.3286	32	32	5.2568	2	2.0055	32	32.0876		
3	3	0	29.5694	3	3	0.4928	33	33	5.4211	3	3.0082	33	33.0904		
4	4	0	39.4259	4	4	0.6571	34	34	5.5853	4	4.0110	34	34.0931		
5	5	0	49.2824	5	5	0.8214	35	35	5.7496	5	5.0137	35	35.0958		
6	6	0	59.1388	6	6	0.9857	36	36	5.9139	6	6.0164	36	36.0986		
7	7	1	8.9953	7	7	1.1499	37	37	6.0782	7	7.0192	37	37.1013		
8	8	1	18.8518	8	8	1.3142	38	38	6.2424	8	8.0219	38	38.1040		
9	9	1	28.7083	9	9	1.4785	39	39	6.4067	9	9.0246	39	39.1068		
10	10	1	38.5647	10	10	1.6428	40	40	6.5710	10	10.0274	40	40.1095		
11	11	1	48.4212	11	11	1.8070	41	41	6.7353	11	11.0301	41	41.1123		
12	12	1	58.2777	12	12	1.9713	42	42	6.8995	12	12.0329	42	42.1150		
13	13	2	8.1342	13	13	2.1356	43	43	7.0638	13	13.0356	43	43.1177		
14	14	2	17.9906	14	14	2.2998	44	44	7.2281	14	14.0383	44	44.1205		
15	15	2	27.8471	15	15	2.4641	45	45	7.3924	15	15.0411	45	45.1232		
16	16	2	37.7036	16	16	2.6284	46	46	7.5566	16	16.0438	46	46.1259		
17	17	2	47.5600	17	17	2.7927	47	47	7.7209	17	17.0465	47	47.1287		
18	18	2	57.4165	18	18	2.9569	48	48	7.8852	18	18.0493	48	48.1314		
19	19	3	7.2730	19	19	3.1212	49	49	8.0495	19	19.0520	49	49.1342		
20	20	3	17.1295	20	20	3.2855	50	50	8.2137	20	20.0548	50	50.1369		
21	21	3	26.9859	21	21	3.4498	51	51	8.3780	21	21.0575	51	51.1396		
22	22	3	36.8424	22	22	3.6140	52	52	8.5423	22	22.0602	52	52.1424		
23	23	3	46.6989	23	23	3.7783	53	53	8.7066	23	23.0630	53	53.1451		
24	24	3	56.5554	24	24	3.9426	54	54	8.8708	24	24.0657	54	54.1479		
				25	25	4.1069	55	55	9.0351	25	25.0685	55	55.1506		
				26	26	4.2711	56	56	9.1994	26	26.0712	56	56.1533		
				27	27	4.4354	57	57	9.3637	27	27.0739	57	57.1561		
				28	28	4.5997	58	58	9.5279	28	28.0767	58	58.1588		
				29	29	4.7640	59	59	9.6922	29	29.0794	59	59.1615		
				30	30	4.9282	60	60	9.8565	30	30.0821	60	60.1643		

TABLE

For converting INTERVALS of MEAN SOLAR Time into Equivalent INTERVALS of SIDEREAL Time.

FRACTIONS OF A SECOND.

Seconds of Mean Time.	Equivalents in Sidereal Time.	Seconds of Mean Time.	Equivalents in Sidereal Time.	Seconds of Mean Time.	Equivalents in Sidereal Time.
0.01	0.01003	0.34	0.34093	0.67	0.67183
0.02	0.02006	0.35	0.35096	0.68	0.68186
0.03	0.03008	0.36	0.36099	0.69	0.69189
0.04	0.04011	0.37	0.37101	0.70	0.70192
0.05	0.05014	0.38	0.38104	0.71	0.71194
0.06	0.06016	0.39	0.39107	0.72	0.72197
0.07	0.07019	0.40	0.40110	0.73	0.73200
0.08	0.08022	0.41	0.41112	0.74	0.74203
0.09	0.09025	0.42	0.42115	0.75	0.75205
0.10	0.10027	0.43	0.43118	0.76	0.76208
0.11	0.11030	0.44	0.44120	0.77	0.77211
0.12	0.12033	0.45	0.45123	0.78	0.78214
0.13	0.13036	0.46	0.46126	0.79	0.79216
0.14	0.14038	0.47	0.47129	0.80	0.80219
0.15	0.15041	0.48	0.48131	0.81	0.81222
0.16	0.16044	0.49	0.49134	0.82	0.82225
0.17	0.17047	0.50	0.50137	0.83	0.83227
0.18	0.18049	0.51	0.51140	0.84	0.84230
0.19	0.19052	0.52	0.52142	0.85	0.85233
0.20	0.20055	0.53	0.53145	0.86	0.86235
0.21	0.21057	0.54	0.54148	0.87	0.87238
0.22	0.22060	0.55	0.55151	0.88	0.88241
0.23	0.23063	0.56	0.56153	0.89	0.89244
0.24	0.24066	0.57	0.57156	0.90	0.90246
0.25	0.25068	0.58	0.58159	0.91	0.91249
0.26	0.26071	0.59	0.59162	0.92	0.92252
0.27	0.27074	0.60	0.60164	0.93	0.93255
0.28	0.28077	0.61	0.61167	0.94	0.94257
0.29	0.29079	0.62	0.62170	0.95	0.95260
0.30	0.30082	0.63	0.63173	0.96	0.96263
0.31	0.31085	0.64	0.64175	0.97	0.97266
0.32	0.32088	0.65	0.65178	0.98	0.98268
0.33	0.33090	0.66	0.66181	0.99	0.99271

This TABLE is useful for the conversion of MEAN SOLAR into SIDEREAL Time.
 Sidereal Time required = Sidereal Time at the preceding Mean Noon + the Equivalent to the given Mean Time.

EXAMPLE.—To convert 2^h 22^m 25^s.62 Mean Time at Greenwich, Jan. 7, 1868, into Sidereal Time.

Sidereal Time at the preceding Mean Noon, viz. January 7 ----- 19 5 22.34

For Mean Intervals. { 2^h 0^m 0^s } The Table gives the Equivalent
 { 22 0 } Sidereal Intervals, 22 3.614
 { 25 } 25.069
 { 0.62 } 0.622

The Sum is the Sidereal Time required - - 21 28 11.36

TABLE
For converting INTERVALS of SIDEREAL Time into Equivalent INTERVALS of
MEAN SOLAR Time.

HOURS.		MINUTES.				SECONDS.			
Hours of Sidereal Time.	Equivalents in Mean Time.	Minutes of Sidereal Time.	Equivalents in Mean Time.	Minutes of Sidereal Time.	Equivalents in Mean Time.	Seconds of Sidereal Time.	Equivalents in Mean Time.	Seconds of Sidereal Time.	Equivalents in Mean Time.
1	^h 0 ^m 59 ^s 50 [·] 1704	1	^m 0 59 [·] 8362	31	^m 30 54 [·] 9214	1	^s 0 [·] 9973	31	^s 30 [·] 9154
2	1 59 40 [·] 3409	2	1 59 [·] 6723	32	31 54 [·] 7576	2	1 [·] 9945	32	31 [·] 9126
3	2 59 30 [·] 5113	3	2 59 [·] 5085	33	32 54 [·] 5937	3	2 [·] 9918	33	32 [·] 9099
4	3 59 20 [·] 6818	4	3 59 [·] 3447	34	33 54 [·] 4299	4	3 [·] 9891	34	33 [·] 9072
5	4 59 10 [·] 8522	5	4 59 [·] 1809	35	34 54 [·] 2661	5	4 [·] 9864	35	34 [·] 9045
6	5 59 1 [·] 0226	6	5 59 [·] 0170	36	35 54 [·] 1023	6	5 [·] 9836	36	35 [·] 9017
7	6 58 51 [·] 1931	7	6 58 [·] 8532	37	36 53 [·] 9384	7	6 [·] 9809	37	36 [·] 8990
8	7 58 41 [·] 3635	8	7 58 [·] 6894	38	37 53 [·] 7746	8	7 [·] 9782	38	37 [·] 8963
9	8 58 31 [·] 5340	9	8 58 [·] 5256	39	38 53 [·] 6108	9	8 [·] 9754	39	38 [·] 8935
10	9 58 21 [·] 7044	10	9 58 [·] 3617	40	39 53 [·] 4470	10	9 [·] 9727	40	39 [·] 8908
11	10 58 11 [·] 8748	11	10 58 [·] 1979	41	40 53 [·] 2831	11	10 [·] 9700	41	40 [·] 8881
12	11 58 2 [·] 0453	12	11 58 [·] 0341	42	41 53 [·] 1193	12	11 [·] 9672	42	41 [·] 8853
13	12 57 52 [·] 2157	13	12 57 [·] 8703	43	42 52 [·] 9555	13	12 [·] 9645	43	42 [·] 8826
14	13 57 42 [·] 3862	14	13 57 [·] 7064	44	43 52 [·] 7917	14	13 [·] 9618	44	43 [·] 8799
15	14 57 32 [·] 5566	15	14 57 [·] 5426	45	44 52 [·] 6278	15	14 [·] 9591	45	44 [·] 8772
16	15 57 22 [·] 7270	16	15 57 [·] 3788	46	45 52 [·] 4640	16	15 [·] 9563	46	45 [·] 8744
17	16 57 12 [·] 8975	17	16 57 [·] 2150	47	46 52 [·] 3002	17	16 [·] 9536	47	46 [·] 8717
18	17 57 3 [·] 0679	18	17 57 [·] 0511	48	47 52 [·] 1364	18	17 [·] 9509	48	47 [·] 8690
19	18 56 53 [·] 2384	19	18 56 [·] 8873	49	48 51 [·] 9725	19	18 [·] 9481	49	48 [·] 8662
20	19 56 43 [·] 4088	20	19 56 [·] 7235	50	49 51 [·] 8087	20	19 [·] 9454	50	49 [·] 8635
21	20 56 33 [·] 5792	21	20 56 [·] 5597	51	50 51 [·] 6449	21	20 [·] 9427	51	50 [·] 8608
22	21 56 23 [·] 7497	22	21 56 [·] 3958	52	51 51 [·] 4810	22	21 [·] 9399	52	51 [·] 8580
23	22 56 13 [·] 9201	23	22 56 [·] 2320	53	52 51 [·] 3172	23	22 [·] 9372	53	52 [·] 8553
24	23 56 4 [·] 0906	24	23 56 [·] 0682	54	53 51 [·] 1534	24	23 [·] 9345	54	53 [·] 8526
		25	24 55 [·] 9044	55	54 50 [·] 9896	25	24 [·] 9318	55	54 [·] 8499
		26	25 55 [·] 7405	56	55 50 [·] 8257	26	25 [·] 9290	56	55 [·] 8471
		27	26 55 [·] 5767	57	56 50 [·] 6619	27	26 [·] 9263	57	56 [·] 8444
		28	27 55 [·] 4129	58	57 50 [·] 4981	28	27 [·] 9236	58	57 [·] 8417
		29	28 55 [·] 2490	59	58 50 [·] 3343	29	28 [·] 9208	59	58 [·] 8389
		30	29 55 [·] 0852	60	59 50 [·] 1704	30	29 [·] 9181	60	59 [·] 8362

TABLE
For converting INTERVALS of SIDEREAL Time into Equivalent INTERVALS of
MEAN SOLAR Time.

FRACTIONS OF A SECOND.

Seconds of Sidereal Time.	Equivalents in Mean Time.	Seconds of Sidereal Time.	Equivalents in Mean Time.	Seconds of Sidereal Time.	Equivalents in Mean Time.
0.01	0.00997	0.34	0.33907	0.67	0.66817
0.02	0.01995	0.35	0.34904	0.68	0.67814
0.03	0.02992	0.36	0.35902	0.69	0.68812
0.04	0.03989	0.37	0.36899	0.70	0.69809
0.05	0.04986	0.38	0.37896	0.71	0.70806
0.06	0.05984	0.39	0.38894	0.72	0.71803
0.07	0.06981	0.40	0.39891	0.73	0.72801
0.08	0.07978	0.41	0.40888	0.74	0.73798
0.09	0.08975	0.42	0.41885	0.75	0.74795
0.10	0.09973	0.43	0.42883	0.76	0.75793
0.11	0.10970	0.44	0.43880	0.77	0.76790
0.12	0.11967	0.45	0.44877	0.78	0.77787
0.13	0.12965	0.46	0.45874	0.79	0.78784
0.14	0.13962	0.47	0.46872	0.80	0.79782
0.15	0.14959	0.48	0.47869	0.81	0.80779
0.16	0.15956	0.49	0.48866	0.82	0.81776
0.17	0.16954	0.50	0.49864	0.83	0.82773
0.18	0.17951	0.51	0.50861	0.84	0.83771
0.19	0.18948	0.52	0.51858	0.85	0.84768
0.20	0.19945	0.53	0.52855	0.86	0.85765
0.21	0.20943	0.54	0.53853	0.87	0.86762
0.22	0.21940	0.55	0.54850	0.88	0.87760
0.23	0.22937	0.56	0.55847	0.89	0.88757
0.24	0.23934	0.57	0.56844	0.90	0.89754
0.25	0.24932	0.58	0.57842	0.91	0.90752
0.26	0.25929	0.59	0.58839	0.92	0.91749
0.27	0.26926	0.60	0.59836	0.93	0.92746
0.28	0.27924	0.61	0.60833	0.94	0.93743
0.29	0.28921	0.62	0.61831	0.95	0.94741
0.30	0.29918	0.63	0.62828	0.96	0.95738
0.31	0.30915	0.64	0.63825	0.97	0.96735
0.32	0.31913	0.65	0.64823	0.98	0.97732
0.33	0.32910	0.66	0.65820	0.99	0.98730

This TABLE is useful for the conversion of SIDEREAL into MEAN SOLAR Time.
Mean Solar Time required = Mean Time at the preceding Sidereal Noon + the Equivalent to the given Sidereal Time.
EXAMPLE.—To convert 21^h 28^m 11^s.36 Sidereal Time at Greenwich, Jan. 7, 1868, into Mean Time.

Mean Time at the preceding Sidereal Noon, viz. ----- January 6 --- 4^h 57^m 45^s.30
For Sidereal Intervals. $\left\{ \begin{array}{l} 21^h \ 28^m \ 0^s \\ 28 \ 0 \\ 11 \ 0 \\ 36 \end{array} \right\}$ The Table gives the Equivalent Mean Intervals, $\left\{ \begin{array}{l} 20 \ 56 \ 33.579 \\ 27 \ 55.413 \\ 10 \ 970 \\ 0.359 \end{array} \right\}$
The Sum is the Mean Time required, Jan. 7 --- 2^h 22^m 25^s.62

LATITUDES AND LONGITUDES OF PUBLIC OBSERVATORIES.

*** The Longitudes are reckoned from the Meridian of Greenwich.

ALBANY, U. S. - - -	(Dudley Observatory.)	
	Lat. $42^{\circ} 39' 49'' \cdot 55$ N.	} <i>Brünnow's Astron. Notices</i> , vol. i. pages 139 and 160.
	Long. $4^{\text{h}} 54^{\text{m}} 59^{\text{s}} \cdot 52$ W.	
ALTONA - - - - -	Lat. $53^{\circ} 32' 45'' \cdot 3$ N.	} <i>Gauss on the Latitudes of Göttingen and Altona</i> , page 71. (Göttingen, 1828.)
	Long. $0^{\text{h}} 39^{\text{m}} 46^{\text{s}} \cdot 14$ E.	
	<i>Expédition Chronométrique exécutée entre Altona et Greenwich, &c.</i> (St. Petersburg, 1845.)	
ANN-ARBOR - - - -	(Michigan.)	
	Lat. $42^{\circ} 16' 48''$ N.	} <i>Astronomical Journal</i> , vol. v. page 112.
	Long. $5^{\text{h}} 35^{\text{m}} 24^{\text{s}}$ W.	
ARMAGH - - - - -	Lat. $54^{\circ} 21' 12'' \cdot 7$ N.	} Communicated by the Rev. Dr. Robinson.
	Long. $0^{\text{h}} 26^{\text{m}} 35^{\text{s}} \cdot 5$ W.	
ATHENS - - - - -	Lat. $37^{\circ} 58' 20''$ N.	} <i>Ast. Nach.</i> vol. xxxiii. page 197. <i>Ergänzungs - Heft zu den Ast.</i> <i>Nach.</i> 1849, page 151.
	Long. $1^{\text{h}} 34^{\text{m}} 55^{\text{s}} \cdot 7$ E.	
BERLIN - - - - -	Lat. $52^{\circ} 30' 16'' \cdot 7$ N.	} <i>Berliner Astron. Jahrbuch</i> , 1852, page 289.
	Long. $0^{\text{h}} 53^{\text{m}} 35^{\text{s}} \cdot 5$ E.	
BILK - - - - -	Lat. $51^{\circ} 12' 25''$ N.	} <i>Ast. Nach.</i> vol. xxvii. page 300.
	Long. $0^{\text{h}} 27^{\text{m}} 5^{\text{s}} \cdot 5$ E.	
BOLOGNA - - - - -	Lat. $44^{\circ} 29' 47''$ N.	} <i>Conn. des Temps</i> , 1861, p. xxxii.
	Long. $0^{\text{h}} 45^{\text{m}} 24^{\text{s}} \cdot 53$ E.	
BONN - - - - -	Lat. $50^{\circ} 44' 9'' \cdot 1$ N.	} <i>Ast. Nach.</i> vol. xviii. page 135.
	Long. $0^{\text{h}} 28^{\text{m}} 27^{\text{s}} \cdot 0$ E.	
BRESLAU - - - - -	Lat. $51^{\circ} 6' 56'' \cdot 0$ N.	} <i>Berliner Astron. Jahrbuch</i> , 1852, page 289.
	Long. $1^{\text{h}} 8^{\text{m}} 10^{\text{s}} \cdot 0$ E.	
BRUSSELS - - - - -	Lat. $50^{\circ} 51' 10'' \cdot 7$ N.	} <i>Annuaire de l'Observatoire de</i> <i>Bruzelles, pour l'An 1837</i> , pages 264 and 265. Communicated by G. B. Airy, Esq.
	Long. $0^{\text{h}} 17^{\text{m}} 28^{\text{s}} \cdot 90$ E.	
BUDA - - - - -	(Ofen.)	
	Lat. $47^{\circ} 29' 12'' \cdot 2$ N.	} <i>Mem. Ast. Soc.</i> vol. i. page 280. <i>Zach's Correspond. Astron.</i> vol. vii. page 263.
	Long. $1^{\text{h}} 16^{\text{m}} 12^{\text{s}} \cdot 7$ E.	
CAMBRIDGE - - - -	Lat. $52^{\circ} 12' 51'' \cdot 6$ N.	} <i>Cambridge Observations</i> , 1838. <i>Camb. Phil. Trans.</i> vol. ix. part iv.
	Long. $0^{\text{h}} 0^{\text{m}} 22^{\text{s}} \cdot 75$ E.	
CAMBRIDGE, U. S. - -	Lat. $42^{\circ} 22' 49''$ N.	} <i>Monthly Notices of the Royal Ast.</i> <i>Soc.</i> vol. vii. page 157.
	Long. $4^{\text{h}} 44^{\text{m}} 32^{\text{s}}$ W.	

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CAPE OF GOOD HOPE	- Lat. $33^{\circ} 56' 3''$ S.	<i>Mem. Roy. Ast. Soc.</i> vol. vi. page 130.
	Long. $1^{\text{h}} 13^{\text{m}} 55^{\text{s}} \cdot 0$ E.	Communicated by Mr. Henderson.
CHRISTIANIA	- - - Lat. $59^{\circ} 54' 42'' \cdot 4$ N.	<i>Ast. Nach.</i> vol. xii. page 283.
	Long. $0^{\text{h}} 42^{\text{m}} 53^{\text{s}} \cdot 9$ E.	<i>Berliner Astron. Jahrbuch</i> , 1852, page 289.
COPENHAGEN	- - - (University.)	
	Lat. $55^{\circ} 40' 53'' \cdot 0$ N.	<i>Ast. Nach.</i> vol. v. page 366.
	Long. $0^{\text{h}} 50^{\text{m}} 19^{\text{s}} \cdot 8$ E.	<i>Ast. Nach.</i> vol. xix. page 120.
CRACOW	- - - - Lat. $50^{\circ} 3' 50'' \cdot 0$ N.	<i>Ast. Nach.</i> vol. xvi. page 256.
	Long. $1^{\text{h}} 19^{\text{m}} 51^{\text{s}} \cdot 1$ E.	<i>Ast. Nach.</i> vol. xvi. page 352 ; and vol. xviii. page 392.
DORPAT	- - - - Lat. $58^{\circ} 22' 47'' \cdot 1$ N.	<i>Struve's Astronom. Observations</i> , vol. vi. page 60.
	Long. $1^{\text{h}} 46^{\text{m}} 53^{\text{s}} \cdot 56$ E.	Communicated by Mr. Struve to the Astronomer Royal.
DUBLIN	- - - - Lat. $53^{\circ} 23' 13''$ N.	} <i>Ast. Nach.</i> vol. x. page 274.
	Long. $0^{\text{h}} 25^{\text{m}} 22^{\text{s}}$ W.	
DURHAM	- - - - Lat. $54^{\circ} 46' 6'' \cdot 2$ N.	} Communicated by Professor Chevallier.
	Long. $0^{\text{h}} 6^{\text{m}} 19^{\text{s}} \cdot 75$ W.	
EDINBURGH	- - - - Lat. $55^{\circ} 57' 23'' \cdot 2$ N.	<i>Ast. Soc. Not.</i> vol. iii. page 201.
	Long. $0^{\text{h}} 12^{\text{m}} 43^{\text{s}} \cdot 6$ W.	<i>Mem. Ast. Soc.</i> vol. iv. page 568.
FLORENCE	- - - - (Musée Royal.)	
	Lat. $43^{\circ} 46' 4'' \cdot 1$ N.	} Communicated by Dr. Donati.
	Long. $0^{\text{h}} 45^{\text{m}} 1^{\text{s}} \cdot 46$ E.	
GENEVA	- - - - Lat. $46^{\circ} 11' 59'' \cdot 4$ N.	<i>Mémoire sur une nouvelle détermination sur la Latitude de Genève.</i> By M. Gautier. (Genève, 1830.)
	Long. $0^{\text{h}} 24^{\text{m}} 37^{\text{s}} \cdot 7$ E.	<i>Ast. Nach.</i> vol. xx. page 7.
GEORGETOWN COLLEGE, D.C. (U.S.)		
	Lat. $38^{\circ} 54' 26'' \cdot 1$ N.	<i>Annals of the Astronomical Observatory of Georgetown College</i> D.C. No. I. p. 215.
	Long. $5^{\text{h}} 8^{\text{m}} 18^{\text{s}} \cdot 15$ W.	<i>Do. Do.</i> p. 186.
GOTHA	- - - - (Seeberg.)	
	Lat. $50^{\circ} 56' 5''$ N.	<i>Gauss on the Latitudes of Göttingen and Altona</i> , page 80.
	Long. $0^{\text{h}} 42^{\text{m}} 56^{\text{s}} \cdot 4$ E.	<i>Bessel's Tabulæ Regiomontanae</i> page 2.

LATITUDES AND LONGITUDES OF PUBLIC OBSERVATORIES.

GÖTTINGEN - - -	Lat. $51^{\circ} 31' 48''$ N.	<i>Gauss on the Latitudes of Göttingen and Altona</i> , page 71.
	Long. $0^h 39^m 46^s.5$ E.	<i>Bessel's Tabula Regiomontana</i> , page 2.
GREENWICH - - -	Lat. $51^{\circ} 28' 38''.0$ N.	Communicated by G. B. Airy, Esq.
	Long. $0^h 0^m 0^s$	
HAMBURGH - - -	Lat. $53^{\circ} 33' 5''.0$ N.	<i>Ast. Nach.</i> vol. vii. page 379.
	Long. $0^h 39^m 54^s.1$ E.	<i>Berliner Astron. Jahrbuch</i> , 1852, page 289.
HAMILTON COLLEGE, N.Y. (U.S.) - - -	{ Lat. $43^{\circ} 3' 16''.5$ N. Long. $5^h 1^m 37^s.12$ W. }	Communicated by Dr. C. H. F. Peters.
HELSINGFORS - - -	Lat. $60^{\circ} 9' 42''.3$ N.	{ <i>Berliner Astron. Jahrbuch</i> , 1865, page 287.
	Long. $1^h 39^m 50^s.9$ E.	
KAZAN - - - - -	Lat. $55^{\circ} 47' 23''.1$ N.	<i>Ast. Nach.</i> vol. xxviii. page 47.
	Long. $3^h 16^m 26^s.3$ E.	<i>Conn. des Temps</i> , 1855, p. 376.
KÖNIGSBERG - - -	Lat. $54^{\circ} 42' 50''.7$ N.	<i>Ast. Nach.</i> vol. xxix. p. 72.
	Long. $1^h 22^m 0^s.5$ E.	<i>Bessel's Tab. Regiomontana</i> , p. 2.
KREMSMUNSTER - - -	Lat. $48^{\circ} 3' 23''.8$ N.	<i>Ast. Nach.</i> vol. xxxvii. page 271.
	Long. $0^h 56^m 32^s.8$ E.	<i>Ast. Nach.</i> vol. xxxvii. page 269.
LEIPSIQ - - - - -	Lat. $51^{\circ} 20' 9''.8$ N.	{ <i>Geschichte und Beschreibung der Leipziger Sternwarte</i> von Dr. C. Bruhns, p. 19.
	Long. $0^h 49^m 33^s.6$ E.	
LEYDEN - - - - -	Lat. $52^{\circ} 9' 28''.2$ N.	{ <i>Ast. Nach.</i> vol. xvii. page 100.
	Long. $0^h 17^m 57^s.5$ E.	
LIVERPOOL - - -	Lat. $53^{\circ} 24' 47''.8$ N.	Communicated by J. Hartnup, Esq.
	Long. $0^h 12^m 0^s.11$ W.	G. B. Airy, Esq.
MADRAS - - - - -	Lat. $13^{\circ} 4' 8''.1$ N.	{ Communicated by Captain W. S. Jacob.
	Long. $5^h 20^m 57^s.3$ E.	
MANHEIM - - - - -	Lat. $49^{\circ} 29' 14''$ N.	<i>Zach's Correspond. Astron.</i> vol. i. page 193.
	Long. $0^h 33^m 51^s.4$ E.	<i>Ast. Nach.</i> vol. ii. page 398.
MARBURG - - - - -	Lat. $50^{\circ} 48' 46''.9$ N.	{ <i>Ast. Nach.</i> vol. xx. page 27.
	Long. $0^h 35^m 5^s.6$ E.	
MARSEILLES - - -	Lat. $43^{\circ} 17' 50''.1$ N.	<i>Zach's Attraction des Montagnes</i> , vol. iii. page 591.
	Long. $0^h 21^m 29^s.0$ E.	<i>Ast. Nach.</i> vol. iv. page 36.

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MELBOURNE	- - -	(New Observatory). Lat. $37^{\circ} 49' 53''.4$ S. Long. $9^{\text{h}} 39^{\text{m}} 54''.8$ E.	} Communicated by R. J. Ellery, Esq.
MILAN	- - - -	(Brera.) Lat. $45^{\circ} 28' 1''$ N. Long. $0^{\text{h}} 36^{\text{m}} 47''.2$ E.	<i>Zach's Correspond. Astron.</i> vol. v. page 300. <i>Ast. Nach.</i> vol. ix. page 312.
MODENA	- - - -	Lat. $44^{\circ} 38' 53''$ N. Long. $0^{\text{h}} 43^{\text{m}} 43''.2$ E.	} <i>Effem. Astron. di Milano</i> for 1829, pages 94 and 60.
MOSCOW	- - - -	Lat. $55^{\circ} 45' 19''.8$ N. Long. $2^{\text{h}} 30^{\text{m}} 16''.96$ E.	} <i>Ast. Nach.</i> vol. xxvii. page 215.
MUNICH	- - - -	(Bogenhausen.) Lat. $48^{\circ} 8' 45''$ N. Long. $0^{\text{h}} 46^{\text{m}} 26''.5$ E.	<i>Ast. Nach.</i> vol. i. page 221. <i>Ast. Nach.</i> vol. viii. page 148.
NAPLES	- - - -	(Capo di Monte.) Lat. $40^{\circ} 51' 46''.6$ N. Long. $0^{\text{h}} 56^{\text{m}} 58''.86$ E.	<i>Ast. Nach.</i> vol. v. page 294. Communicated by Professor Ragona.
NICOLÉFF	- - - -	Lat. $46^{\circ} 58' 20''.6$ N. Long. $2^{\text{h}} 7^{\text{m}} 55''.1$ E.	<i>Ast. Nach.</i> vol. vii. page 261. <i>Ast. Nach.</i> vol. vii. page 306.
OXFORD	- - - -	Lat. $51^{\circ} 45' 36''.0$ N. Long. $0^{\text{h}} 5^{\text{m}} 2''.6$ W.	} Communicated by M. J. Johnson, Esq.
PADUA	- - - -	Lat. $45^{\circ} 24' 2''$ N. Long. $0^{\text{h}} 47^{\text{m}} 29''.2$ E.	<i>Ast. Nach.</i> vol. v. page 411. <i>Ast. Nach.</i> vol. iv. page 347.
PALERMO	- - - -	Lat. $38^{\circ} 6' 44''$ N. Long. $0^{\text{h}} 53^{\text{m}} 24''.17$ E.	<i>Cacciatore</i> , in Books 7 and 8 of <i>Palermo Observations</i> . Communicated by Professor Ragona.
PARIS	- - - -	Lat. $48^{\circ} 50' 13''$ N. Long. $0^{\text{h}} 9^{\text{m}} 20''.63$ E.	<i>Conn. des Temps</i> , 1853, page 353. Communicated by G. B. Airy, Esq.
PETERSBURG	- - -	(Academy of Sciences.) Lat. $59^{\circ} 56' 29''.7$ N. Long. $2^{\text{h}} 1^{\text{m}} 13''.5$ E.	} <i>Description de l'Observatoire As-</i> <i>tron. Central de Poulkova</i> , p. 292.
PORTSMOUTH	- - -	Lat. $50^{\circ} 48' 3''$ N. Long. $0^{\text{h}} 4^{\text{m}} 23''.9$ W.	} <i>Requisite Tables</i> , 3rd edit. (from Trig. Survey.)
PRAGUE	- - - -	Lat. $50^{\circ} 5' 18''.5$ N. Long. $0^{\text{h}} 57^{\text{m}} 41''.9$ E.	<i>Ast. Nach.</i> vol. viii. page 198. <i>Ast. Nach.</i> vol. iii. page 264.
PULKOWA	- - - -	Lat. $59^{\circ} 46' 18''.7$ N. Long. $2^{\text{h}} 1^{\text{m}} 18''.66$ E.	} <i>Description de l'Observatoire As-</i> <i>tron. Central de Poulkova</i> , p. 290.

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QUEBEC - - - -	Lat. $46^{\circ} 48' 30''$ N. Long. $4^{\text{h}} 44^{\text{m}} 49^{\text{s}}.02$ W.	} Communicated by Lieutenant Ashe, R. N.
RIO DE JANEIRO - -	Lat. $22^{\circ} 53' 51''.0$ S. Long. $2^{\text{h}} 52^{\text{m}} 14^{\text{s}}.59$ W.	} Communicated by Lieutenant G. L. Tupman, R. M. Artillery.
ROME - - - -	(Roman College.) Lat. $41^{\circ} 53' 52''.2$ N. Long. $0^{\text{h}} 49^{\text{m}} 54''.7$ E.	} <i>Mem. dell' Osserv. dell' Università Gregoriana del Collegio Romano</i> , 1851, page 17.
ST. FERNANDO, near CADIZ - - - -	Lat. $36^{\circ} 27' 45''$ N. Long. $0^{\text{h}} 24^{\text{m}} 49''.1$ W.	} <i>Zach's Corresp. Astron.</i> vol. xiv. pages 240-243. <i>Ast. Nach.</i> vol. ix. page 358.
SANTIAGO DE CHILE -	(National Observatory.) Lat. $33^{\circ} 26' 25''.4$ S. Long. $4^{\text{h}} 42^{\text{m}} 32''.97$ W.	} <i>Observaciones Astronómicas, &c de Santiago de Chile</i> . Tomo I..
STOCKHOLM - - - -	Lat. $59^{\circ} 20' 31''.0$ N. Long. $1^{\text{h}} 12^{\text{m}} 14^{\text{s}}.8$ E.	<i>Conn. des Temps</i> , 1840, page 344. <i>Ast. Nach.</i> vol. xi. page 408.
SYDNEY - - - -	Lat. $33^{\circ} 51' 41''.1$ S. Long. $10^{\text{h}} 4^{\text{m}} 59^{\text{s}}.86$ E.	} Communicated by W. Scott, Esq.
TURIN - - - -	(New Observatory.) Lat. $45^{\circ} 4' 6''$ N. Long. $0^{\text{h}} 30^{\text{m}} 48^{\text{s}}.4$ E.	} Communicated by M. Plana to Captain B. Hall, R.N.
UPSALA - - - -	(New Observatory.) Lat. $59^{\circ} 51' 31''.5$ N. Long. $1^{\text{h}} 10^{\text{m}} 30^{\text{s}}$ E.	} Communicated by Dr. Thalén.
UTRECHT - - - -	Lat. $52^{\circ} 5' 10''.5$ N. Long. $0^{\text{h}} 20^{\text{m}} 31^{\text{s}}.3$ E.	} Communicated by M. Hoek.
VENICE - - - -	Lat. $45^{\circ} 25' 49''.5$ N. Long. $0^{\text{h}} 49^{\text{m}} 25^{\text{s}}.4$ E.	} <i>Berliner Astron. Jahrbuch</i> , 1852, page 290.
VIENNA - - - -	Lat. $48^{\circ} 12' 35''$ N. Long. $1^{\text{h}} 5^{\text{m}} 31^{\text{s}}.9$ E.	<i>Littrow's Astron. Observations</i> , Part viii. page 124. <i>Ast. Nach.</i> vol. iii. page 64.
WARSAW - - - -	Lat. $52^{\circ} 13' 5''.0$ N. Long. $1^{\text{h}} 24^{\text{m}} 8^{\text{s}}.5$ E.	} <i>Additions to Conn. des Temps</i> , 1846, pages 30, 31.
WASHINGTON - - -	(National Observatory.) Lat. $38^{\circ} 53' 38''.6$ N. Long. $5^{\text{h}} 8^{\text{m}} 12^{\text{s}}.0$ W.	} <i>Roy. Ast. Soc. Monthly Notices</i> , vol. x. page 180.
WILNA - - - -	Lat. $54^{\circ} 41' 0''$ N. Long. $1^{\text{h}} 41^{\text{m}} 11^{\text{s}}.9$ E.	<i>Ast. Nach.</i> vol. iv. page 562. <i>Ast. Nach.</i> vol. viii. page 96.

- LATITUDES AND LONGITUDES OF PRIVATE OBSERVATORIES.

BIRK CASTLE - - -	(The Earl of Rosse.)		
	Lat. $53^{\circ} 5' 47''$ N. } Communicated by the Earl of		
	Long. $0^h 31^m 40^s \cdot 9$ W. } Rosse.		
BRADSTONES - - -	(W. Lassell, Esq.)		
(LIVERPOOL.)	Lat. $53^{\circ} 25' 28''$ N. } Communicated by W. Lassell,		
	Long. $0^h 11^m 38^s \cdot 7$ W. } Esq.		
CARDINGTON - - -	(S. C. Whitbread, Esq.)		
(NEAR BEDFORD.)	Lat. $52^{\circ} 6' 25''$ N. } Communicated by S. C. Whit-		
	Long. $0^h 1^m 39^s$ W. } bread, Esq.		
CRANFORD - - -	(Warren De la Rue, Esq.)		
	Lat. $51^{\circ} 28' 57'' \cdot 8$ N. } Communicated by Warren		
	Long. $0^h 1^m 37^s \cdot 53$ W. } De la Rue, Esq.		
HADDENHAM - - -	(Rev. W. R. Dawes.)		
(BUCKS.)	Lat. $51^{\circ} 45' 54''$ N. } Communicated by the Rev.		
	Long. $0^h 3^m 43^s \cdot 4$ W. } W. R. Dawes.		
HARTWELL - - -	(Dr. Lee.)		
	Lat. $51^{\circ} 48' 36''$ N. } Communicated by Dr. Lee.		
	Long. $0^h 3^m 24^s \cdot 33$ W. }		
HAVERHILL - - -	(W. W. Boreham, Esq.)		
	Lat. $52^{\circ} 5' 22'' \cdot 8$ N. } Communicated by W. W. Bore-		
	Long. $0^h 1^m 46^s \cdot 4$ E. } ham, Esq.		
JOSEPHSTADT - - -	(Herr Theodore Oppolzer.)		
	Lat. $48^{\circ} 12' 55''$ N. } Communicated by Herr T.		
	Long. $1^h 5^m 25^s \cdot 5$ E. } Oppolzer.		
KENSINGTON - - -	(Sir James South.)		
	Lat. $51^{\circ} 30' 11'' \cdot 6$ N. } Communicated by Sir James		
	Long. $0^h 0^m 46^s \cdot 8$ W. } South.		
LEYTON - - -	(J. Gurney Barclay, Esq.)		
	Lat. $51^{\circ} 34' 34''$ N. } Communicated by J. Gurney		
	Long. $0^h 0^m 0^s \cdot 87$ W. } Barclay, Esq.		
TARN BANK - - -	(Isaac Fletcher, Esq.)		
	Lat. $54^{\circ} 39' 13'' \cdot 7$ N. } Communicated by Isaac		
	Long. $0^h 13^m 44^s \cdot 52$ W. } Fletcher, Esq.		

LATITUDES AND LONGITUDES OF PRIVATE OBSERVATORIES.

TWICKENHAM - - - (George Bishop, Esq.)

Lat. $51^{\circ} 27' 4'' \cdot 2$ N.	} Communicated by Lieut.-Col. Sir Henry James.
Long. $0^h 1^m 13^s \cdot 10$ W.	

WROTTESLEY HALL - (Lord Wrottesley.)

Lat. $52^{\circ} 37' 2'' \cdot 3$ N.	} Communicated by Lord Wrottesley.
Long. $0^h 8^m 53^s \cdot 57$ W.	

EXPLANATION OF THE ARTICLES

CONTAINED IN

THE NAUTICAL ALMANAC AND ASTRONOMICAL EPHEMERIS FOR THE YEAR 1868.

ALL the articles of the Ephemeris have been computed for Greenwich MEAN solar time ; and where they are given for apparent solar or sidereal time, it has been chiefly for the convenience of astronomers. A *day* is the interval of time between the departure of any meridian from a heavenly body and its succeeding return to it, and derives its name from the body with which the motion of the meridian is compared. The interval between the departure and return of a meridian to the Sun is called a *solar day* ; in the case of the Moon, the interval is called a *lunar day* ; and in that of a Star, a *sidereal day*. The revolution of the Earth on its axis is always performed in the same time ; and if the heavenly bodies preserved the same positions with respect to each other, the intervals between the departure and return of a meridian to each would be the same, and all days, consequently, of equal length. The Sun, (or more strictly, the Earth in its orbit,) the Moon, and the Planets are, however, in continual motion ; and with velocities not only different from each other, but varying in each particular body : the length of a day, as determined by any of these bodies, is therefore a variable quantity.

Astronomers, with a view of obtaining a convenient and uniform measure of time, have recourse to a *mean solar day*, the length of which is equal to the mean or average of all the apparent solar days in a year. An imaginary Sun, called the *mean Sun*, is conceived to move uniformly in the Equator with the real Sun's *mean* motion in Right Ascension, and the interval between the departure of any meridian from the *mean Sun* and its succeeding return to it is the duration of the mean solar day. Clocks and chronometers are adjusted to mean solar time ; so that a complete revolution (through 24 hours) of the hour hand of one of these machines should be performed in exactly the same interval as the revolution of the Earth on its axis with respect to the mean Sun. If the mean Sun could be observed on the meridian at the instant that the clock indicated 0^h 0^m 0^s, it would again be observed there when the hour hand returned to the same position. As the time deduced from observation of the *true Sun* is called *true* or *apparent* time, so the time deduced from the *mean Sun*, or indicated by the machines which represent its motion, is denominated *mean* time.

We cannot *immediately* obtain mean time from observation ; but, from an observation of the true Sun, with the aid of the equation of time, which is the angular distance in time between the mean and the true Sun, we may readily deduce it. Suppose the true Sun to be observed on the meridian of Greenwich, Jan. 1, 1868 ; it would then be apparent noon at that meridian ; the equation of time at this instant is 3^m 36^s 63, and, by the precept at the head of the column, it is "*to be added to*

apparent time"; hence it appears that the corresponding mean time is Jan. 1, 0^h 3^m 36^s·63, or that the mean Sun had passed the meridian previously to the true Sun, and that at the instant of observation the mean time clock ought to indicate this time.

A mere inspection of the columns of the Ephemeris is, of itself, sufficient to show that the quantities are continually varying, and that some reduction is necessary where data are to be obtained for any time differing from that for which the quantities are registered. Take, for instance, the Sun's Right Ascension on Page II. of the month of January; on January 1, it is 18^h 45^m 19^s·57; on January 2, it is 18^h 49^m 44^s·48; in the course of 24 mean hours it has therefore increased by 4^m 24^s·91. If, then, the Right Ascension were required for any time between January 1 and January 2, as at January 1, 6^h, it would be necessary to increase the Right Ascension on January 1, by the proportional part of the daily increase due for the 6^h, viz. by one-fourth part, or 1^m 6^s·23. This would in all cases be required, even under the meridian of Greenwich, for which the quantities have been specially computed. Let a person be now supposed to be under a meridian 15° West of Greenwich. The positions of the heavenly bodies, as referred to the centre of the Earth, are independent of meridians, and are the same for all places at the same absolute instant; but the relative times at Greenwich and the assumed meridian would be different. If it were 1^h from mean noon at the one place, it could not be 1^h from mean noon at the other; for when we speak of time, we mean, as regards a visible phenomenon, the distance of the Sun *westward* from a given meridian, and at the same absolute moment of time the Sun *cannot* be at the same distance (*reckoning westward*) from two meridians which are 15° distant from each other. Before we can make use of the Ephemeris, it is therefore necessary to ascertain, in every instance, the distance of the Sun (*in time*) from the meridian of Greenwich, or what is commonly called the corresponding Greenwich time; and this is evidently equal to the given time under the assumed meridian, *increased* or *diminished* by the difference (*in time*) of the two meridians, according as the assumed meridian is to the *Westward* or *Eastward* of Greenwich. In a mean solar day or 24 mean solar hours, the Earth, by its rotation from West to East, has caused every meridian in succession from East to West to pass the mean Sun; and since the motion is uniform, all the meridians distant from each other 15° will have passed the mean Sun, at intervals of one mean hour; the meridian to the eastward passing first, or being, as compared with the Sun, always one mean hour in advance of the westerly meridian. When it is 6^h after mean noon at a place 15° West of Greenwich, it is therefore 7^h after mean noon at Greenwich; and it is for this Greenwich time that we must deduce the quantities * required from the Ephemeris.

If a chronometer adjusted to Greenwich mean time be at hand, the Greenwich time may be immediately obtained by applying a correction, deduced from the daily rate and interval elapsed.

The day of the month in this Ephemeris (Page I. excepted, being for *apparent* noon) is assumed to begin at mean noon of the corresponding civil day, or at the instant when a clock shows 0^h 0^m 0^s, Greenwich mean time, and is continued through the 24 hours, to the following mean noon; it may therefore be called the *mean astronomical day*, although, in practice, astronomers begin the day at the moment the true Sun's centre is on their meridian.

* Meridian passages, or times of transit, excepted. See cases of the Moon in page 519.

In the civil, or common, method of reckoning, the day commences at the *preceding* midnight, and is counted only to 12 hours or noon, when the 12 hours are reckoned over again to the next midnight. The civil reckoning is therefore always 12^h in advance of the astronomical reckoning; hence the well known rule for determining the latter from the former, viz.:—For P.M. civil times make no change, but for A.M. ones, diminish the day of the month by 1 and add 12 to the hours. Thus:—Jan. 2nd, 7^h 49^m P.M. civil time, is Jan. 2, 7^h 49^m astronomical time, but Jan. 2nd, 7^h 49^m A.M. civil time, is Jan. 1, 19^h 49^m astronomical time.

To each month there are devoted twenty pages, distinguished by the Roman numerals I. to XX.

For convenience of interpolation, the quantities that follow next in order of succession have been added at the bottom of each page. Thus the quantities opposite to February 1 will be found inserted also opposite to January 32, the number of the days in each month having been intentionally increased for such purpose.

Page I. of each Month.

The contents of this page are adapted to *apparent noon*, or the instant when the Sun's centre is on the meridian of Greenwich. The *Sun's Right Ascension*, here given, is *affected with aberration*, and reckoned from the true equinox; it is therefore the sidereal time at apparent noon, or the time which ought to be shown by a sidereal clock, at that instant. The *Sun's Apparent Declination* is the angular distance of the Sun from the equator, measured on the meridian.

The *Diff. for 1 hour* is intended to facilitate the reduction of the quantities from apparent noon to any other time. It is the diff. at *noon* and requires to be reduced to midway between noon and the time at which the R.A., Dec., or Eq. of time is required. *Example*:—Required the Sun's Declination on Jan. 16th, 1868, at apparent noon in longitude 60° West of Greenwich, the longitude in time is 4^h, and being West, the corresponding apparent astronomical time at Greenwich is Jan. 16, 4^h; the diff. of the Dec. for 1 hour at Jan. 16, 0^h or noon is 28''·25, and at Jan. 17, 0^h it is 29''·25, therefore for midway between Jan. 16, 0^h and 4^h it is 28''·33, which multiplied by 4 gives 1' 53''·3 to be *subtracted* from the Dec. at noon, or S. 21° 0' 56''·2; the Dec. required is therefore S. 20° 59' 2''·9.

The *Sidereal Time of the Sun's Semidiameter passing the Meridian* is useful for reducing a transit observation of either limb of the Sun, when one only has been observed, to the transit of the centre.

The *Equation of Time* is the difference between apparent and mean time, and therefore serves for the conversion of either time into the other. The numbers here given, show, for Greenwich apparent noon, the distance of the mean Sun from the meridian, or the portion of time to be *added to* or *subtracted from*, (according to the precept at the head of the column,) Greenwich apparent noon to obtain the corresponding mean time at the same meridian, or the time which ought to be shown by the mean time clock.

Where time is deduced from observations of the Sun, the *immediate* result is *apparent* time; to convert it into mean time, the equation of time is necessary, and it is to be applied to apparent time, according to the precept at the head of the column.

Thus, suppose the apparent time deduced from an observation of the Sun on Jan. 16th, 1868, in longitude 45° or 3^h East of Greenwich, to be 6^h P.M. civil time, and it were required to convert it into mean time; subtracting the difference of longitude 3^h from the apparent time at the place, we have Jan. 16, 3^h for the corresponding astro-

nomical apparent time at Greenwich. The difference of the equation for 1 hour at January 16, 0^h or *apparent noon* is 0^s·863, and at Jan. 17, 0^h it is 0^s·835, consequently, for midway between noon and 3^h, or 1^h 30^m, it is 0^s·861, which multiplied by 3, gives 2^s·583 for the variation in 3 hours, and this being added (because the equation is increasing) to 9^m 52^s·09, the equation of time at apparent noon, the result is 9^m 54^s·67, to be added (according to the precept at the head of the column) to the given apparent time 6^h, whence we obtain 6^h 9^m 54^s·67 for the mean time required.

At page I. of the month of April, we observe, at the head of the column *added to*
subt. from, which signifies that a change of precept occurs in the course of the month; and between the equations opposite to April 14 and 15, a black line, indicating that the change occurs between those days. The upper precept applies to all the quantities above the black line; and the lower precept to all the quantities below it: that is, in the instance referred to, the equation of time is to be *added to* apparent time from April 1, to the instant at which the equation becomes 0^m 0^s, which happens between April 14 and 15; but after that instant the equation is to be *subtracted* from apparent to obtain mean time.

Page II. of each Month.

The *Sun's Apparent Right Ascension* and *Declination* at mean noon have been deduced from its *apparent* Longitude and Latitude given at page III., and the *apparent* obliquity of the ecliptic at page 242. They denote the *apparent* position of the true Sun with reference to the equator, and the true equinox, at the instant the Greenwich mean time clock indicates 0^h 0^m 0^s, or when the hour angle of the true Sun is equal to the equation of time.

To find the Right Ascension and Declination for any other mean time and place, as at 9^h 20^m A.M. civil time March 2nd, 1868, in longitude 98°, or 6^h 32^m, West of Greenwich. The astronomical time, corresponding to 9^h 20^m A.M. March 2nd, is March 1, 21^h 20^m, agreeably to what has been said before. The longitude, being West of Greenwich, must be added to March 1, 21^h 20^m, and the result, March 2, 3^h 52^m, is the corresponding Greenwich mean time, for which the Right Ascension and Declination are to be found. The difference between the Right Ascensions on March 2 and 3 is 3^m 43^s·64, that is, in the 24 mean hours succeeding March 2, the Right Ascension has increased by this quantity; it will, therefore, have received a proportional part of the increase in 3^h 52^m, and the amount is readily obtained by this proportion:—24^h : 3^m 43^s·64 :: 3^h 52^m : 36^s·03; which, being *added* to 22^h 54^m 28^s·19, the Right Ascension opposite March 2, gives 22^h 55^m 4^s·22, for the Right Ascension at the time proposed.

In a similar manner the Declinations indicate a decrease of 23' 0^s·2 in the 24 hours; therefore, 24^h : 23' 0^s·2 :: 3^h 52^m : 3' 42^s·4, the proportional part of the decrease for 3^h 52^m, which, *subtracted* from S. 6° 58' 36^s·6 leaves S. 6° 54' 54^s·2 for the Declination required. Correction for second difference would increase the Right Ascension by 0^s·03, and the Declination by 0^s·4.

The *Semidiameter of the Sun*. The numbers in this column express the angle at the centre of the earth subtended by the Sun's semidiameter, and are required for reducing observations of the limb to the centre, as in the instance of measuring the altitude of the Sun's upper or lower limb, or the distance of the Moon from the Sun.

Equation of Time. The numbers in this column are the values of the equation at the instant of mean noon, and therefore serve more particularly to convert *mean* into *apparent* time; for which purpose we have only to apply the equation according

to the precept at the head of the column. Thus, if from mean noon of April 2, or April 2, 0^h , be subtracted the equation $3^m 30^s 60$; April 1, $23^h 56^m 29^s 40$ is the corresponding apparent time. To find the equation of time at 3^h A.M. civil time on April 15th, 1868, in longitude 105° , or $7^h 0^m$, West of Greenwich. Add the difference of longitude to the given time, because it is West, and the corresponding astronomical mean time at Greenwich is April 14, $22^h 0^m$. The variation in 24 hours is $14^s 86$, that is, the *sum* of the equations belonging to April 14 and 15, because the equation has decreased to 0 and then increased in the interval, therefore

$$24^h : 14^s 86 :: 22^h 0^m : 13^s 62,$$

which, being greater than $0^m 9^s 26$, the equation on April 14, which was decreasing, shows that in the $22^h 0^m$ the equation has passed through its state of decrease to zero or 0, and is now increasing. The difference $4^s 36$ is the equation of time at the time proposed, and is to be added to mean time, because it has passed the zero.

Sidereal Time at Mean Noon is the angular distance of the first point of Aries, or the true vernal equinox, from the meridian, at the instant of mean noon: it is therefore the Right Ascension of the mean Sun, or the time which ought to be shown by a sidereal clock at Greenwich, when the mean time clock indicates $0^h 0^m 0^s$.

A sidereal clock represents the rotation of the Earth on its axis, as referred to the stars, its hour hand performing a complete revolution through the 24 hours in the interval between the departure of any meridian from a star and its next return to it. At the moment that the vernal equinox, or a star whose Right Ascension is $0^h 0^m 0^s$, is on the meridian of Greenwich, the sidereal clock ought to show $0^h 0^m 0^s$, and at the succeeding return of the star, or the equinox, to the same meridian, the clock ought to indicate the same time.

The sidereal time here given is that in common use among astronomers, and expresses the actual hour angle from the meridian, westward, of the true equinoctial point at the moment of observation. It is therefore affected by the equation of the equinoxes; and is not, strictly speaking, a *mean* or uniformly increasing quantity. It ought, therefore, to be termed *apparent sidereal time* in the same manner as apparent solar time reckons from the actual arrival of the sun's centre on the meridian; and in like manner, as mean solar time is reckoned from the arrival of an imaginary sun, moving uniformly with its mean velocity, so *mean sidereal time* (whose expression would be simply $\frac{\odot's \text{ mean longitude}}{15}$) would be reckoned from the transit of, not the

true, but the *mean* equinoctial point. The smallness of the fluctuations to which a clock, regulated to *apparent* sidereal time compared with one regulated to *mean* sidereal time, is subject, being at the utmost only $2^s 3$ in a period of nineteen years, has prevented the practical inconvenience of this from being felt: no clock being sufficiently perfect to go during so long a period without frequent re-adjusting; and as the corrections applied by astronomers to the observed right ascensions of all objects are adapted to this supposed irregularity in the rate of the clock, the mean right ascensions thence deduced come out correct. It has, therefore, not been thought necessary, in this instance, to depart from received usage, however theoretically objectionable such a mode of counting time may appear, since a change in this respect would involve the necessity of a corresponding change in all tables of nutation.

The sidereal time at mean noon is useful in all cases where mean solar time is to be deduced from observations of the heavenly bodies. It serves to facilitate the reduction of sidereal to mean solar time, and *vice versa*, by the help of the tables commonly used for that purpose called a Table of Acceleration of Sidereal on Mean

solar time, and the corresponding Table of Retardation of Mean on Sidereal time, according to the following rule:—Convert the interval from the mean noon immediately preceding, from the denomination given, to that required; and if mean time be required, the result will at once be that which the clock should show; but if sidereal time be that sought, the result must be added to the sidereal time at the preceding mean noon.

Example:—To convert $21^{\text{h}} 9^{\text{m}} 24^{\text{s}} \cdot 04$ sidereal time, January 2, 1868, into mean solar time, for the meridian of Greenwich.

	h	m	s
Sidereal time given - - - - -	21	9	24·04
Sidereal time at mean noon, January 2 - - - - -	18	45	39·55
Interval in sidereal time from mean noon - - - - -	2	23	44·49
Retardation of mean on sidereal time for the interval	—	23	55
Mean solar time required - - - - -	2	23	20·94

which is the interval elapsed since mean noon, expressed in mean time; and therefore the time which ought to be shown by a mean time clock.

Vice versâ, to convert $2^{\text{h}} 23^{\text{m}} 20^{\text{s}} \cdot 94$ mean solar time, January 2, 1868, into sidereal time for the same meridian.

	h	m	s
Mean interval from mean noon, January 2 - - -	2	23	20·94
Acceleration of sidereal on mean time for the interval	+	23	55
Sidereal interval from mean noon - - - - -	2	23	44·49
Sidereal time at mean noon, January 2 - - - - -	18	45	39·55
Sidereal time required - - - - -	21	9	24·04

which ought to be the time shown by the sidereal clock at the instant in question.

If the place of observation be not on the meridian of Greenwich, the sidereal time must be corrected by the *addition* of $9^{\text{s}} \cdot 8565$ for each hour (and proportional parts for the minutes and seconds) of longitude, if the place be to the west of Greenwich; but by its *subtraction*, if to the east. Thus in $9^{\text{h}} 10^{\text{m}} 6^{\text{s}}$ west longitude, the sidereal time at mean noon, January 2, instead of being, as in the foregoing Example, $18^{\text{h}} 45^{\text{m}} 39^{\text{s}} \cdot 55$, must be corrected by adding $1^{\text{m}} 30^{\text{s}} \cdot 37$, thus giving $18^{\text{h}} 47^{\text{m}} 9^{\text{s}} \cdot 92$ for the time to be used, instead of that set down in the column.

The conversion of mean solar to sidereal time, and *vice versâ*, may, however, be performed, and with perhaps less liability to error, by means of this and of the column entitled *Mean Time of Transit of the First point of Aries*, at page XIX. of each month, using the Tables of Time Equivalents, inserted at pages 500 to 503.

To convert mean solar into sidereal time: To the sidereal time at the *preceding* mean noon add the sidereal interval corresponding to the given mean time; the sum will be the sidereal time required. (See Example at page 501.)

To convert sidereal into mean solar time: To the mean time at the *preceding* sidereal noon, add the mean interval corresponding to the given sidereal time; the sum will be the mean solar time required. (See Example at page 503.)

In this mode of reduction there is not, as in the former, by means of the Tables of Acceleration and Retardation, any distinction of cases, all the quantities being additive.

The Tables of Time Equivalents differ from the Tables of Acceleration and Retardation, in containing the *values* of intervals of each species of time, expressed in

terms of the other, instead of the *corrections*, respecting the proper application of which, a difficulty is sometimes felt by unpractised computers.

Sidereal time at mean noon is also used in finding the mean time of transit of a heavenly body.

Page III. of each Month.

The *Sun's Longitude*, here given, is affected with *aberration*, and reckoned from the *true* equinox : it is therefore the apparent longitude of the Sun at the instant of mean noon ; or it is (if *R* denote the Radius Vector) the *true* Longitude of the Sun at the time $0^h - 497^m \cdot 78 R$, because aberration causes the Sun to appear behind its true place in the Ecliptic.

The *Sun's Latitude* is the angular distance of the Sun's centre from the plane of the Ecliptic, measured on a circle perpendicular to that plane.

The *Logarithm of the Radius Vector of the Earth* is the logarithm of the distance between the centre of the Earth and the true place of the centre of the Sun at mean noon, the mean distance, or the semi-axis major of the orbit, being considered unity.

These quantities are derived *immediately* from the Solar tables, and enter into, indeed are the foundation of, nearly all the subsequent operations in the Ephemeris. Whenever the *true* Longitude of the Earth is required, as in calculating the Geocentric position of a Planet or Comet from its Heliocentric position, it is necessary to reduce the *apparent* Longitude of the Sun to the *true*, by correcting it for aberration. The Sun's aberration for every tenth day is given at page 242, and may thence be readily obtained for any other day of the year. (See *Sun's aberration*, page 528.)

The Sun's Longitude, entering into the expressions for aberration and solar nutation, is required for the reduction of the stars' places.

The *Moon's Semidiameter* is the angle under which her Semidiameter would appear if viewed from the centre of the Earth ; and her *Horizontal Parallax* is the *greatest* angle under which the Earth's equatorial semidiameter would appear if seen from the centre of the Moon. The former is requisite to obtain the position of the centre from an observation of the Moon's *limb*, as in all cases of altitudes or lunar distances. The latter, for computing the horizontal parallax of the Moon at any given latitude on the Earth, *considered as a spheroid* ; also for finding the parallax in altitude, Right Ascension, &c., for the purpose of reducing an observation of the Moon made on the surface of the Earth, to what it would be if made at the centre.

In reducing observations of the Moon made at sea, the horizontal *equatorial* parallax is generally used for finding the parallax in altitude, without regarding the previous reduction to the spheroid ; but in calculations requiring considerable precision, as in lunar occultations and solar eclipses, this reduction cannot be dispensed with.

Example. To find the Moon's semidiameter and horizontal parallax at 6^h A.M. civil time, January 9th, 1868, at a place 15° , or 1^h to the East of Greenwich. The equivalent mean astronomical time at the place, is January 8, 18^h , from which subtracting 1^h , because the place is to the East of Greenwich, we have January 8, 17^h for the corresponding time at Greenwich, or 5^h after midnight. Proceeding from the semidiameter given for Jan. 8, 12^h or midnight, we must compute the proportional part of the variation in 12 hours due to the time elapsed since midnight, viz. 5^h ; and for ordinary purposes at sea, it will suffice simply to take this propor-

tional part for the correction of the registered value preceding the given time; thus the semidiameter for January 8, 12^h or midnight, is 16' 43''·7, and for 9, 0^h or noon, it is 16' 46''·1; the difference 2''·4, is the variation in 12 hours. Therefore,

$$12^h : 2''\cdot4 :: 5^h : 1''\cdot0,$$

which *added* (because the quantities are increasing) to 16' 43''·7, gives 16' 44''·7 for the Moon's semidiameter at the time proposed. Similarly the horizontal parallax for January 8, 12^h or midnight, is 61' 17''·4; and for 9, 0^h or noon, it is 61' 26''·2; the difference 8''·8 is the variation in the 12 hours which include the given time; therefore, 12^h : 8''·8 :: 5^h : 3''·7, which *added* (because the quantities are increasing) to 61' 17''·4 gives 61' 21''·1 for the Horizontal parallax required. If greater accuracy be desired, a further correction must be applied to the values just obtained, on account of second differences, to compensate the error produced by supposing the first differences uniform. But the *greatest* error in the semidiameter which can arise by this supposition in the present instance is not two tenths of a second; for, select four semidiameters from the Ephemeris, two preceding, and two following the given time, and take the first and second differences thus:—

January 8,	0 ^h	16' 40"·0	+	3"·7	—	1"·3
	12	16 43'·7	+	2"·4	—	1"·4
9,	0	16 46'·1	+	1"·0	—	1"·4
	12	16 47'·1				

The mean of the second differences is 1''·4 and $\frac{1}{2}$ of this, which is the *greatest* effect, is only 0''·18.

A similar operation performed on the parallaxes will show the error that would arise on the supposition of uniform or equal first differences, to be six-tenths of a second.

Page IV. of each Month.

The *Moon's Longitude and Latitude* at mean noon and midnight indicate the position of the Moon at these respective times, referred to the Ecliptic and the true equinox, as it would be seen from the centre of the Earth. They are the results deduced immediately from the lunar tables, and are the foundation of all subsequent calculations in which the Moon is concerned. These quantities are now of little use to the seaman, as the position of the Moon, with respect to the Equator, is given for every hour in the succeeding pages; but the Moon's Longitude is involved in the formulæ for nutation, and is therefore necessary for its determination. In finding the Moon's Longitude and Latitude for any other times than those of mean noon and midnight, it is necessary to apply the equation of second, and sometimes even of third and fourth differences, on account of the irregular variation of her motion.

The *Moon's Age* at mean noon is the mean time elapsed since the Moon's ecliptic conjunction with the Sun, or since the Sun and Moon had the same Longitude. The numbers in this column represent her age at Greenwich, and are expressed in days, and decimal parts of a day.

The *Moon's Meridian Passage*.—This column contains the Greenwich mean astronomical time to the nearest tenth of a minute, at which the Moon's centre is on the *upper* meridian of Greenwich, and is useful to indicate when the Latitude may

be obtained from an observed meridian altitude of the Moon ; also, in conjunction with a Table of semidiurnal Arcs, to determine approximately the times of the rising and setting of the Moon : it is likewise useful in finding the time of High Water.

When the symbol (δ) denoting conjunction occurs, as on January 24, we are to understand that the Moon does *not* pass the *upper* meridian on that day at Greenwich. This is the case once in every lunation, and arises from the circumstance of the lunar day being greater than the mean solar day, and including it within its limits. In the present instance, the excess is $0^h 46^m \cdot 2$, or the lunar day is equal to $24^h 46^m \cdot 2$ mean solar time ; the Moon passes the meridian Jan. 23, $23^h 55^m \cdot 8$, mean astronomical time at Greenwich, and does not return to the same meridian until Jan. 25, $0^h 42^m \cdot 0$. For the same reason there is also one day in every lunation on which the Moon does not transit the *lower* meridian, and this happens about the time of opposition, or when the difference of longitude of the Sun and Moon is 180° . In the list of Moon-culminating stars, at pages 390 to 429, the days on which only one transit occurs are readily seen. On January 24th (page 392), for instance, it appears that the Moon transits the *lower* meridian only, while on February 7th (page 394), the only transit is that at the *upper* meridian.

The mean astronomical time of transit under any other meridian may be obtained thus :—If the estimated civil time of transit is A.M. diminish the day of the month by 1, but if P.M. make no change. In either case take from the ephemeris the corresponding “Meridian Passage.”

If the longitude is East take the difference between this meridian passage and the one which precedes it, but if the longitude is West, the one which follows it.

Then say, *as* 24^h , *is to* the difference of meridian passages, *so is* the longitude in time, *to a* correction, which subtracted from the meridian passage taken from the ephemeris, if the longitude is East, or added if West, gives the mean astronomical time of transit under the proposed meridian.

Thus :—Suppose on January 17th, 1868, about $6^h 10^m$ A.M. civil time, in longitude 60° , or 4^h East of Greenwich, it is required to know the mean astronomical time of the moon's transit. January 17th, A.M. civil time, is January 16, astronomical time ; opposite January 16 the meridian passage is $18^h 25^m \cdot 6$, and the difference between it and the *preceding* meridian passage is $0^h 47^m \cdot 2$, therefore $24^h : 0^h 47^m \cdot 2 :: 4^h : 7^m \cdot 9$ to be subtracted from $18^h 25^m \cdot 6$, giving $18^h 17^m \cdot 7$ for the time required. Had the longitude been West of Greenwich the difference between $18^h 25^m \cdot 6$ and the *following* meridian passage must have been taken, and the result would have been $24^h : 0^h 46^m \cdot 7 :: 4^h : 7^m \cdot 8$ to be added to $18^h 25^m \cdot 6$. Again, suppose on August 30th, 1868, about 10^h P.M. civil time, in longitude 40° , or $2^h 40^m$ West, it is required to know the time of the moon's transit. August 30th P.M. civil time is August 30 astronomical time, opposite to which, the meridian passage is $10^h 25^m \cdot 1$, and the difference between it and the *following* meridian passage is $0^h 45^m \cdot 1$, the correction is therefore, $24^h : 0^h 45^m \cdot 1 :: 2^h 40^m : 5^m \cdot 0$, to be added to $10^h 25^m \cdot 1$, giving $10^h 30^m \cdot 1$ for the mean astronomical time of transit required.

The times thus deduced are only approximate ; but they are sufficiently accurate for the purposes usually required.

Pages V. to XII. of each Month.

The *Moon's Right Ascension and Declination* for every hour of the day, with the *Difference of Declination for 10 minutes*. By means of the quantities here given, the Latitude, Time, Azimuth, Moon's rising and setting, &c., may be deduced, with nearly as little labour as is required in the case of the Sun. The numbers represent the position of the Moon, as it would appear from the centre of the Earth, with respect to the equator and the true equinox; and they are given for every hour, with the view of rendering any correction for second differences unnecessary, except where extreme precision is required. The Right Ascension for any time is readily obtained by simply adding the proportional part of the hourly variation due to the interval elapsed since the preceding hour. Thus, suppose the Right Ascension of the Moon were required at 8^h 45^m P.M. mean civil time on January 12th, or January 12, 8^h 45^m mean astronomical time, in longitude 60°, or 4^h east of Greenwich. The given time, 8^h 45^m, diminished by 4^h, gives the corresponding Greenwich time 4^h 45^m. The Right Ascension at 4^h is 10^h 7^m 45^s 48, and at 5^h it is 10^h 10^m 10^s 30; the difference 2^m 24^s 82, is the increase in the interval, or 60^m. Hence, 60^m :: 2^m 24^s 82 :: 45^m :: 1^m 48^s 62, which being *added* to the Right Ascension at 4^h, gives 10^h 9^m 34^s 10 for the Right Ascension at 4^h 45^m at Greenwich, or at 8^h 45^m under the proposed meridian. The Declination might be found in a similar manner, but as the effect of second difference is frequently appreciable, it is preferable to use the "Diff. Dec. for 10^m." reduced to midway between the time for which the Declination is required and the preceding hour in the ephemeris. In the present case the time is 4^h 45^m; the "Diff. Dec. for 10^m" at 4^h, is 98'' 17, and at 5^h, 98'' 77; for 4^h .22½^m it is therefore 98'' 40. Hence we say, 10^m :: 98'' 40 :: 45^m :: 7' 22'' 8, which being *subtracted* (because the Declinations are decreasing) from N. 10° 59' 1'' 5, the Declination at 4^h, gives N. 10° 51' 38'' 7, for the Declination at the time proposed.

The *Phases of the Moon*. These are given at page XII. to the nearest tenth of a minute. The numbers denote the Greenwich mean astronomical time, at which the difference of Longitude between the Sun and the Moon is 0°, 90°, 180°, or 270°, being

0° at the New Moon,
90° at the First Quarter,
180° at the Full Moon,
270° at the Last Quarter.

The *Moon's Apogee and Perigee*. The numbers here given indicate, to the nearest hour, the Greenwich mean time at which the Moon is respectively at her greatest and least distance from the Earth.

Pages XIII. to XVIII. of each Month.

Lunar Distances.—These pages contain, for every third hour of Greenwich mean time, the angular distances between the apparent *centres* of the Moon and certain heavenly bodies, such as they would appear to an observer at the centre of the Earth. When a Lunar Distance has been observed on the surface of the Earth, and reduced to the centre, by clearing it of the effects of parallax and refraction, the numbers in these pages enable us to ascertain the exact Greenwich mean time at which the objects would have the same distance. They are arranged, from *west to east*, commencing each day with the object which is at the greatest distance *westward* of the Moon, in the precise order in which they appear in the heavens; W. indicating that the object

is west, and E. east of the Moon. Thus we have at one view, by a simple reference to the date, all the lunar distances which are available for the determination of the Longitude.

The columns headed "P.L. of diff." contain the proportional logarithms of the differences of the distances at intervals of three hours, which are used in finding the Greenwich time corresponding to a given distance, according to the following rule, viz.: For the given day, seek in the Ephemeris for the *nearest* distance *preceding*, in order of time, the given distance, and take the difference between it and the given distance; from the proportional logarithm of this difference subtract the proportional logarithm standing opposite to the said *nearest* distance in the Ephemeris; the remainder will be the proportional logarithm of a portion of time to be added to the hour answering to the *nearest* distance, to obtain the approximate Greenwich mean time corresponding to the given distance.

If the distance between the Moon and a Star increased or decreased uniformly, the Greenwich times corresponding to a given distance, as found by the above rule, would be strictly correct; but an inspection of the columns of the proportional logarithms in the Ephemeris will show that this is not the case; and as the knowledge of the exact Greenwich time is desirable, a correction must be applied to the time so found for the variation of the differences of the distances. This correction may be obtained by means of the Table at page 494 of the present volume, in the following manner:

1. Find the approximate interval by the preceding rule.
2. Take the difference between the proportional logarithms standing opposite to the distances in the Ephemeris which include the given distance.
3. With the approximate interval and this difference, as arguments, take out the correction from the table.
4. If the proportional logarithms are *decreasing*, *add* the correction to the approximate time; but if *increasing*, *subtract* it: the result will be the accurate Greenwich mean time.

Example I.—Suppose it were required to find the Greenwich mean astronomical time, at which the *reduced* distance between the Moon and α Pegasi would be $47^{\circ} 9' 50''$ about January 31st, 1868. It appears, by inspecting the distances, that the time must be Jan. 31, between *Midnight* and XV^h: the *nearest* distance *preceding*, in order of time, the given distance is therefore the

Distance at <i>Midnight</i>	46 26 19	and P. L.	- - 3220
<i>Reduced Distance</i>	- 47 9 50		
Difference	- - 0 43 31	- P. L.	- - 6166
Approximate Interval	1 ^h 31 ^m 20 ^s	- P. L.	- - 2946

The difference between the proportional logarithms in the Ephemeris, at *Midnight*, and XV^h, is 44. Opposite to 1^h 31^m 20^s (or the quantity nearest to it, 1^h 30^m), and under 44, in the table, we have for the correction 14^s, which, *added* to the approximate interval, 1^h 31^m 20^s, because the proportional logarithms are *decreasing*, gives 1^h 31^m 34^s, for the true interval after *Midnight*: the Greenwich mean astronomical time is therefore Jan. 31, 13^h 31^m 34^s.

We see that, in the preceding Example, the omission of this correction would produce an error of only $3' \cdot 50$ in the Longitude. Cases may, however, occur, in which it would be greater.

It will sometimes happen, that the difference of the proportional logarithms will exceed 138, the limit of the table of correction; in this case the table may be entered with the approximate interval, and *one-half or any fraction* of the difference of the proportional logarithms and the corresponding correction *increased in like proportion*.

Example II.—Suppose it were required to find the Greenwich mean astronomical time, at which the *reduced* distance between the Moon and α Arietis would be $20^\circ 40' 2''$ about February 27th, 1868. By inspecting the distances, it appears that the time must be February 26, between XVIII^h and XXI^h; therefore take the

	° ' ''	
Distance at XVIII ^h	21 13 41	and P. L. - - 4288
<i>Reduced</i> Distance -	20 40 2	
	0 33 39	
Difference - - -	0 33 39	- - P. L. - - 7283
	1 ^h 30 ^m 19 ^s	
Approximate Interval	1 ^h 30 ^m 19 ^s	- - P. L. - - 2995

The difference between the proportional logarithms in the Ephemeris, at XVIII^h and XXI^h, is 251, one-half of which is 126; under this number in the table, and opposite that nearest the approximate interval, is $39''$: the correction is therefore $78''$ to be *subtracted* from the approximate interval, because the proportional logarithms are *increasing*; the Greenwich mean astronomical time is therefore February 26, $19^h 29^m 1''$.

The omission of the correction in the preceding example would produce an error of $19\frac{1}{2}'$ in Longitude; it may, however, be considered as an extreme case, and such as will seldom be met with.

The proportional logarithms also serve to point out the star which is most favourably circumstanced for accurate observation; that star being to be preferred which has the least proportional logarithm opposite to it; for, the greater the velocity of the Moon from or towards a Star, the greater is the reliance to be placed on an observation of the distance; and it is a property of proportional logarithms to decrease as their natural numbers increase: a smaller proportional logarithm, therefore, indicates a greater velocity of the Moon, or a greater variation of distance in the interval, upon which the value of the observation depends. Thus, on July 14, 1868, between Noon and III^h, Jupiter is the most eligible star, because the proportional logarithm, 2647, is less than that of any other; and, by inspecting the columns of proportional logarithms, it will appear to deserve the preference until July 16, at XXI^h.

On August 27, between IX^h and *Midnight*, the following is the order of preference, as indicated by the proportional logarithms, viz., Jupiter, Spica, Saturn, Antares, α Pegasi, SUN, Fomalhaut.

It is by no means to be inferred from these remarks that observations of any of the distances are to be neglected; on the contrary, every registered star should invariably be observed when an opportunity offers. If, however, on a comparison of

results, a considerable difference should be discovered, the proportional logarithms will indicate the stars which are least liable to be affected by errors of observation, and therefore deserving of a greater degree of confidence as to the accuracy of the results obtained from them.

Page XIX. of each Month.

1. *Airy's Day Numbers, for correcting the Places of the Fixed Stars.*

These are computed from the logarithms of A, B, C, D, in page XX, by the formulæ in the introduction to the Greenwich Twelve-year Catalogue,* and are used with constants found in that Catalogue. They have been employed for some time at the Royal Observatory, Greenwich, and their use is considered by the Astronomer Royal to possess some advantage over the well known method of Bessel, in consequence of there being no algebraic signs to attend to; the following example will illustrate their application, and serve for comparison with the similar operation by Bessel's method in pages 524-25.

Required the corrections of the Right Ascension and North Polar Distance of γ Orionis (No. 454 G^b 12 Yr. Cat.) for Precession, Aberration, and Nutation, at Greenwich mean midnight on February 5, 1868.

Logarithms.		Nat. Nos.	Logarithms.		Nat. Nos.
e	- - 0°08367		e'	- - 9°94196	
E	- - 1°05643		E	- - 1°05643	
	<u>1°14010</u>	- - - - 13°807		<u>0°99839</u>	- - - - 9°96
f	- - 0°10240		f'	- - 0°07185	
F	- - 1°59180		F	- - 1°59180	
	<u>1°69420</u>	- - - - 49°454		<u>1°66365</u>	- - - - 46°09
g	- - 1°45046		g'	- - 1°32770	
G	- - 0°07270		G	- - 0°07270	
	<u>1°52316</u>	- - - - 33°355		<u>1°40040</u>	- - - - 25°14
h	- - 0°07967		h'	- - 0°33894	
H	- - 1°52463		H	- - 1°52463	
	<u>1°60430</u>	- - - - 40°207		<u>1°86357</u>	- - - - 73°04
	Value of l	84°150		Value of l'	78°55
	Value of L	79°740		Value of L	79°74
	Sum - -	300°713		Sum - -	312°52
	Constant -	300°0		Constant -	300°0
Correction of Right Ascension +	<u>0°713</u>		Correction of North Polar Distance +	<u>12°52</u>	

2. *Mean Time of Transit of the First Point of Aries.*

The time in this column shows the distance of the *mean* Sun from the meridian, at the instant when the *true* point of intersection of the ecliptic and equator (called the first point of Aries) is on the meridian of Greenwich; and as the distance of the first point of Aries from the meridian, at the instant the mean Sun is on the meridian, is denominated sidereal time at mean noon, this may, by analogy, be termed the

* Catalogue of 2156 Stars, formed from the observations made during twelve years from 1836 to 1847, at the Royal Observatory, Greenwich. London, 1849. 4to.

mean time at sidereal noon. It is the time which ought to be shown by a mean time clock adjusted to the Greenwich meridian, at the moment that a clock, adjusted to sidereal time, indicates exactly $0^h 0^m 0^s$. The use of this column is to facilitate the reduction of sidereal to mean solar time, with the help of the Table of Time Equivalents, given at pages 502 and 503, as has been already explained at page 516.

Page XX. of each Month.

1. *Bessel's Day Numbers, for correcting the Places of the Fixed Stars.*

In the formulæ which express the relation of the apparent place of a Star to its mean place, and reciprocally, there are certain factors which are independent altogether of the Star's place, and are therefore common to all Stars. These factors depend upon the longitudes of the Sun, Moon, and Moon's ascending Node.

The logarithms here given are the logarithms of these independent factors conveniently arranged for incorporation with other terms depending upon each particular Star, according to the method recommended by the late Professor Bessel. They have been computed for mean midnight at Greenwich, according to the formulæ exhibited at page 329, omitting in C and D the terms depending on 2 ζ .

In the form under which they now appear, they are chiefly used in conjunction with the Catalogue of the British Association,* which contains the logarithms of the remaining factors depending on the Star's place; and for the reduction of any Star in that Catalogue, they appear to afford every facility that can be desired.

Where, however, the apparent place of any Star, *not in the British Association Catalogue*, is required, similar quantities to those must either be computed with reference to the particular Star, before we can use the A, B, C, D, or recourse must be had to other and independent means; such, for instance, as are afforded by the table at pages 330 and 331, which serves equally for all Stars. The formulæ by which this table has been constructed are given at page 329.

The following Examples will sufficiently illustrate the mode of using both tables, bearing in mind that the British Association Catalogue gives the correction of the Right Ascension ($\Delta \alpha$), *in time*.

Required the Correction ($\Delta \alpha$) of the Right Ascension and ($\Delta \delta$) of the Declination of γ Orionis (No. 1687 B.A.C.) for Precession, Proper Motion, Aberration, and Nutation, at Greenwich mean midnight, on February 5, 1868.

1.—By the B.A.C. Constants and the Logarithms of A, B, C, D.

	h	m	s		$^{\circ}$	$'$	$''$
Mean α , Jan. 1, 1850	5	17	5.33	Mean δ	+	6	12 34.3
18 Years' precession and proper motion			+ 57.96	18 Years' precession and proper motion		+ 1	6.2
Mean α , Jan. 1, 1868	5	18	3.29	Mean δ	+	6	13 40.5

* "The Catalogue of Stars of the British Association for the Advancement of Science; containing the Mean Right Ascensions and North Polar Distances of eight thousand three hundred and seventy-seven Fixed Stars, reduced to January 1, 1850: together with their annual precessions, secular variations, and proper motions, as well as the logarithmic constants for computing precession, aberration, and nutation. With a Preface explanatory of their Construction and Application. By the late Francis Baily, Esq." London, 1845. 4to.

	Logarithms.	Nat. Nos.		Logarithms.	Nat. Nos.
a	$+ 8^{\circ}0963$		a'	$+ 9^{\circ}5130$	
A	$- 1^{\circ}1340$		A'	$- 1^{\circ}1340$	
$a A$	$- 9^{\circ}2303$	$0^{\circ}170$	$a' A'$	$- 0^{\circ}6460$	$4^{\circ}426$
b	$+ 8^{\circ}8188$		b'	$+ 8^{\circ}3039$	
B	$+ 1^{\circ}1481$		B'	$+ 1^{\circ}1481$	
$b B$	$+ 9^{\circ}9669$	$+ 0^{\circ}927$	$b' B'$	$+ 9^{\circ}4520$	$+ 0^{\circ}283$
c	$+ 0^{\circ}5070$		c'	$+ 0^{\circ}5721$	
C	$- 8^{\circ}2504$		C'	$- 8^{\circ}2504$	
$c C$	$- 8^{\circ}7574$	$0^{\circ}057$	$c' C'$	$- 8^{\circ}8225$	$0^{\circ}066$
d	$+ 7^{\circ}1304$		d'	$- 9^{\circ}9923$	
D	$+ 0^{\circ}9278$		D'	$+ 0^{\circ}9278$	
$d D$	$+ 8^{\circ}0582$	$+ 0^{\circ}011$	$d' D'$	$- 0^{\circ}9201$	$8^{\circ}320$
$t \Delta c$		$0^{\circ}000$	$t \Delta c'$		$0^{\circ}000$
	$\Delta a = + 0^{\circ}711$			$\Delta b = - 12^{\circ}529$	

2.—By the independent Constants.

For February 5, 1868, the Table at pages 330 and 331, furnishes

$$f = - 0^{\circ}82; g = + 8^{\circ}48; G = 92^{\circ}25; h = + 19^{\circ}57; H = 315^{\circ}56; i = - 5^{\circ}90$$

$$a \text{ (in time) converted} = 79^{\circ}31$$

$$G + a = 171^{\circ}56$$

$$H + a = 35^{\circ}27$$

	Logarithms.	Nat. Nos.		Logarithms.	Nat. Nos.
f		$0^{\circ}82$			
g	$+ 0^{\circ}9284$		\cos	$+ 0^{\circ}9284$	
$\sin (G + a)$	$+ 9^{\circ}1471$		\cos	$- 9^{\circ}9957$	
$\tan \delta$	$+ 9^{\circ}0379$			$- 0^{\circ}9241$	$8^{\circ}40$
	$+ 9^{\circ}1134$	$+ 0^{\circ}13$			
h	$+ 1^{\circ}2916$		\sin	$+ 1^{\circ}2916$	
$\sin (H + a)$	$+ 9^{\circ}7634$		\cos	$+ 9^{\circ}9110$	
$\sec \delta$	$+ 0^{\circ}0026$		\sin	$+ 9^{\circ}0354$	
	$+ 1^{\circ}0576$	$+ 11^{\circ}42$		$+ 0^{\circ}2380$	$+ 1^{\circ}73$
	$\Delta a \text{ (in arc)} = + 10^{\circ}73$		i	$- 0^{\circ}7709$	
	$\Delta a \text{ (in time)} = + 0^{\circ}715$		$\cos \delta$	$+ 9^{\circ}9974$	
				$- 0^{\circ}7683$	$5^{\circ}87$
				$\Delta b = - 12^{\circ}54$	

$t \Delta c$ and $t \Delta c'$ not appreciable on February 5.

$$\text{Hence the App. Right Ascens. of } \gamma \text{ Orionis} = 5^{\text{h}} 18^{\text{m}} 3^{\text{s}} 29 + 0^{\circ}71 = 5^{\text{h}} 18^{\text{m}} 4^{\circ}00$$

$$\text{and the Apparent Declination} = + 6^{\circ} 13' 40^{\circ}5 - 12^{\circ}5 = + 6^{\circ} 13' 28^{\circ}0$$

2. Days elapsed of the Julian Period at Mean Noon.

This column is given at the suggestion of Sir John Herschel and explains itself. Its principal use is to facilitate the determination of the interval in days between two epochs, which is frequently required in astronomical calculations.

3. *Mean Equinoctial Time.*

Mean Equinoctial Time signifies the mean time elapsed since the instant of the mean vernal equinox. The numbers in this column represent this time, at every mean noon, in mean solar days and fractional parts of a day; it is reckoned from the mean vernal equinox of 1867, between January 1, and March 21, 730319, but after March 21, 730319, from the vernal equinox of 1868; for the Equinoctial Year has been assumed equal to 365.242216 mean solar days; and as the Equinoctial Time corresponding to the mean noon of March 21, 1868, is 364.511897, it is evident that the Equinoctial Year of 1867-68 will be completed, and a new year commenced, at 0^d.730319 after Mean Noon of March 21.

The Fraction of the day at the head of the column is common to all the days of the Equinoctial Year. Thus at mean noon of January 19, 1868, the Equinoctial Time is 302^d.511897, and on January 20 it is 303^d.511897, and so on until March 21, 730319, when the year terminates, and the fractional part of the day changes. At Mean Noon of March 22, 1868, the Equinoctial Time is 0^d.269681, and this fraction is to be annexed to all the numbers in the column of days, from the period of the change until the equinox of 1869.

At the instant the mean Sun arrives at the mean vernal equinox, it must also be on *some* meridian, and this meridian will then have its equinoctial time corresponding with its mean solar time, each of which will be 0^h 0^m 0^s, and they will continue to correspond throughout the Equinoctial Year. At the end of the Equinoctial Year, the Sun will have passed this meridian 365 times, and have performed, besides, a certain portion of its 366th diurnal revolution, viz. 0^d.242216; it will, therefore, have arrived at some other meridian, which will now, in its turn, reckon the mean equinoctial and mean solar time from the same point, and remain constant for the year. Thus the meridian, from which the time is reckoned, is shifting its position at the end of every year by 0^d.242216, or 5^h 48^m 47^s.46, to the Westward. Between the vernal equinoxes of 1868 and 1869, this itinerant meridian corresponds to Longitude 0^d.269681 East, or 6^h 28^m 20^s.44, East of Greenwich.

This species of time was first introduced in the Supplement to the Nautical Almanac for 1828, with a very full explanation of its nature and use. It there appears, that the use of Equinoctial Time is to afford an uniform date, which shall be independent of the different meridians, and of all inequalities in the Sun's motion, and shall thus save the necessity, when speaking of the time of any event's happening, of mentioning at the same time the place where it was observed or computed. Thus, it is the same thing to say that a comet passed its perihelion on 1868, January 5, 5^h 47^m 0^s.0 mean time at Greenwich; at 5^h 56^m 20^s.6, mean time at Paris; or at 1867.288^d 18^h 4^m 7^s.90 equinoctial time; but the former dates make the localities of Greenwich and Paris enter as elements of the expression; whereas the latter expresses the period elapsed since an epoch common to all the world, and identifiable independently of all localities. By this means all ambiguities in the reckoning of time are supposed to be avoided.

To convert mean solar into equinoctial time: To the corresponding Greenwich mean time add the equinoctial time at mean noon of the same day at Greenwich: the sum will be the equinoctial time required. Thus, in the instance of the comet before alluded to, Paris being 9^m 20^s.6 East of Greenwich, subtract this from the Paris time and we get 5^h 47^m 0^s.0 for the corresponding Greenwich time, to which add 288^d.511897, or 288^d 12^h 17^m 7^s.90, the Mean Equinoctial Time at Greenwich mean noon of January 5, and the sum will represent the mean equinoctial

time of the comet's passage of its perihelion, viz., $288^{\text{d}} 18^{\text{h}} 4^{\text{m}} 7^{\text{s}}.90$, from the vernal equinox of the year 1867.

It may here be stated, that in the Supplement to the Nautical Almanac for 1828, the equinoctial time is based on the mean Longitude in Delambre's Solar Tables, and an assumed *invariable* length of the Equinoctial year = 365.242264 mean solar days, with a recommendation that any subsequent improvements in the solar theory be disregarded. An alteration was, however, made in the Nautical Almanac for 1834, and continued to 1856, by substituting Bessel's mean Longitude and his *variable* length of the Equinoctial year. Sir John Herschel has suggested as an approximation to consistency, the correction of the equinoctial times 1827-28 to 1833-34, for the difference between Bessel and Delambre, and the permanent adoption, after 1856, of 365.242216 mean solar days for the length of the Equinoctial year. Between 1834 and 1856, the error arising from the assumed variable length is too minute to require notice, being at most $.000002$, and generally less.

The corrections of 1827-28 to 1833-34 are as under :—

1827-28	$+0.001802$
1828-29	$.001848$
1829-30	$.001894$
1830-31	$.001940$
1831-32	$.001986$
1832-33	$.002032$
1833-34	$+0.002078$

4. Day of the Year.

The numbers in this column indicate the complete days at mean noon which have elapsed since mean noon of January 1. Mean noon of January 1 is therefore reckoned 0, and 1 is found opposite to that of January 2, because at that instant one entire day has elapsed.

5. Fraction of the Year.

These fractions are the quotients found by dividing the numbers in the preceding column by 365.242 . The day and fraction of the year are useful in many Astronomical calculations.

Obliquity of the Ecliptic. (Page 242.)

The apparent inclination of the plane of the Ecliptic to that of the Equator is here given for every 10th day of the year, and continued to January 5 of the following year, marked December 36 for the sake of convenience. This inclination is ever varying, as well from the effect of its mean diminution, as of the nutation of the earth's axis: it is an important element in deducing the positions of the heavenly bodies, with reference to either of the planes, when we know their positions with respect to the other; as, for instance, in computing Right Ascensions and Declinations from Longitudes and Latitudes, and *vice versè*. If the apparent Obliquity be required for any date not to be found in the Table, it may be obtained by simply taking the proportional part of the variation of the obliquity corresponding to the interval which comprises the given date. Thus, the apparent Obliquity on November 1, 1868, is $23^{\circ} 27' 15''.70$. For the variation of the Obliquity in the ten days between October 27, and November 6, is $0''.13$, or

0''.013 for one day, and this being multiplied by 5, the number of days between October 27, and November 1, gives 0''.06, to be *subtracted* from the Obliquity of October 27. For most purposes, however, the Obliquity corresponding to the date in the Table nearest to the given date is sufficient, as is evident from an inspection of the quantities.

Sun's Horizontal Parallax. (Page 242.)

The Sun's Horizontal Parallax is the *greatest* angle under which the equatorial semidiameter of the earth would appear at the Sun's centre. It varies inversely as the distance, and the numbers in this column show the values for every tenth day of the year.

The Parallax serves for reducing a solar observation made at the surface of the earth to what it would have been if made at the centre.

Sun's Aberration. (Page 242.)

The progressive motion of light, combined with the motion of the Earth in its orbit, causes the Sun to appear in a different position from that which he really occupies, the true position being always in advance of the apparent. The numbers in this column indicate, for every 10th day of the year, the amount of aberration, or the quantity to be applied to the *true* Longitude of the Sun to obtain the *apparent* Longitude. The Longitudes derived from the solar tables include aberration, and are therefore *apparent* Longitudes, such as are contained in this Ephemeris. If the *true* Longitude of the Sun be wanted, as is the case in finding the longitude of the Earth for the calculation of the Geocentric place of a body, the aberration must be applied with a contrary sign. Thus, on April 10, 1868, at mean noon, by *adding* 20''.39, the amount of aberration, to 20° 53' 13''.1, the apparent Longitude of the Sun, we obtain 20° 53' 33''.5 for the true Longitude.

Precession in Longitude. (Page 242.)

This column contains the amount of the retrograde motion on the Ecliptic of the point of intersection of the Equator and Ecliptic, or first point of Aries, for each 10th day from January 1, 1868, and is useful for reducing a longitude reckoned from the *Mean* Equinox of any given date to that of January 1, or any other date. Thus, suppose it were required to refer the true Longitude of the Sun on April 10, 1868, to the mean Equinox of January 1, 1868.

The *apparent* Longitude, from the true equinox of April 10, is 20° 53' 13''.1; the aberration —20''.39 and the Equation of the Equinoxes —8''.91 being applied with the signs changed, give 20° 53' 42''.40 for the *true* longitude from the mean equinox of April 10; and *subtracting* 13''.76, the amount of precession, there results 20° 53' 28''.64 for the true Longitude of the Sun on April 10, but reckoned from the mean equinox of January 1, 1868.

Equation of the Equinoxes. (Page 242.)

The Solar and Planetary Tables furnish us with the places of the heavenly bodies referred to the mean equinox; but the true place of the equinox at any time differs from its mean place, by a quantity which is termed the Equation of the Equinoxes; and the numbers here given show the value of the equation for every 10th day of the year. They are to be applied, with their proper signs to

the Longitudes reckoned from the mean equinox, to obtain the values with respect to the true equinox.

If the Longitude of a body be given with reference to the true equinox, as in this Ephemeris, and it be required to find its Longitude reckoned from the mean equinox, the equation of the equinoxes must be applied with a contrary sign. Thus, the Longitude of the Sun, reckoned from the true equinox, on April 10, 1868, is $20^{\circ} 53' 13'' \cdot 1$, and the Equation of the Equinoxes is $-8'' \cdot 91$; therefore, applying it with the contrary sign, the sum $20^{\circ} 53' 22'' \cdot 01$, is the Sun's Longitude from the *mean* equinox on that day.

The Equation corresponding to any date not contained in the table, may be obtained in the usual way by interpolation.

The Equation of the Equinoxes in Right Ascension, in a similar manner, enables us to find the *apparent* point of intersection of the Ecliptic on the Equator; and is necessary in computing sidereal time, &c.

Mean Longitude of C's ascending Node. (Page 242.)

This column contains the Mean Longitude of the Moon's ascending Node, at mean noon of every 10th day of the year, reckoned from the mean equinox. The place for any intermediate day is easily found from the daily motion inserted at the foot of the column. The Longitude of the Node is necessary in many calculations; it is sometimes used to determine roughly the Stars which are likely to undergo occultation by the Moon.

Sun's Co-ordinates. (Pages 243 to 250.)

These pages contain for each Greenwich mean noon the Sun's true Geocentric Co-ordinates X, Y, Z; X being measured on a line passing through the true vernal Equinoctial point of the date; Y, on a line in the plane of the Equator, in the direction of the first point of Cancer; and Z, perpendicular to the plane of the Equator, towards the North. To facilitate cometary calculations reductions are given for converting the co-ordinates X, Y, Z, referred to the true equinox of the date, into co-ordinates referred to the mean equinox of January 1, 1868.

Planetary Ephemerides at Mean Noon. (Pages 251 to 300.)

These pages contain the Geocentric and Heliocentric places of the Planets, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, and Neptune.

The Geocentric places are the places of the centres of the planets, as they would appear from the centre of the Earth; the Heliocentric, such as they would appear from the centre of the Sun.

The positions of Mercury, Venus, Mars, Jupiter, and Saturn are given for Greenwich Mean Noon on every day of the year, those of Uranus and Neptune for each fourth day. The Geocentric Right Ascensions and Heliocentric Longitudes, are reckoned from the true equinox. The Geocentric Right Ascensions and Declinations are *affected with aberration*, and are therefore *apparent* positions.

By means of the positions of Venus, Mars, Jupiter, and Saturn, and particularly of Venus and Jupiter, which are frequently visible when the Sun is above the horizon, the Latitude, Time, and Variation of the Compass, may be found with nearly as much facility and accuracy as by the Sun.

The column headed "Meridian Passage" shows the mean time of the Planet's transit over the meridian of Greenwich, and serves to find the mean time of transit over any other meridian. As in the instance of the Moon before noticed, there are

some days on which the planets do not pass the meridian ; these are indicated by two asterisks (* *). If we refer to page 252, we shall find that Mercury does not pass over the Greenwich meridian on Jan. 19, and for a similar reason, viz., that the planetary day is here longer than the mean solar day, and commences so near, but previously, to the noon of Jan. 19, viz., $0^m \cdot 3$, as to want still $2^m \cdot 9$ of its completion at the termination of Jan. 19. The planetary day, therefore, includes the solar day, January 19 : it begins *before* the solar day and ends *after* it, and the planet cannot arrive at the meridian at any period of it.

Another phenomenon takes place in the case of the planets, which, however, does not occur with the Moon ; it is that of two transits on the same day, which arises from the planetary day being sometimes *shorter* than the solar day, commencing *after* and terminating *before* the solar day, and thus falling entirely within it. This cannot be the case with the Moon, because the lunar day is always greater than the solar day. When two transits occur, the times of both are registered, as at page 253, Mar. 8, where it appears that Mercury passes the Greenwich meridian $4^m \cdot 7$ after mean noon of Mar. 8, and again at $23^h 57^m \cdot 3$ on the same day, or $2^m \cdot 7$ before the arrival of the following Mean Noon.

The positions of the planets for any time not given in the Ephemeris, and under any other meridian than that of Greenwich, are to be found by interpolation in the usual way. *Example:* Required the Right Ascension and Declination of Mercury at 6^h P.M. mean civil time on January 4th, 1868, in longitude 30° west of Greenwich ; also the time of Mercury's passage over this meridian. The difference of longitude 2^h , *added* (because it is west) to the given time, gives Jan. 4, 8^h for the corresponding Greenwich mean astronomical time.

1. *For the Right Ascension.* The Right Ascension on Jan. 4, is $18^h 8^m 17^s \cdot 83$, and on Jan. 5, it is $18^h 15^m 3^s \cdot 03$; the difference $6^m 45^s \cdot 20$, is the variation of the Right Ascension in 24 mean hours ; therefore $24^h : 6^m 45^s \cdot 20 :: 8^h : 2^m 15^s \cdot 07$ the proportional part of the variation answering to 8^h ; and this proportional part *added* (because the Right Ascensions are increasing) to $18^h 8^m 17^s \cdot 83$, the Right Ascension for January 4, 0^h or *noon*, gives $18^h 10^m 32^s \cdot 90$ for the Right Ascension required, that is, on the assumption of invariable first difference ; including the effect of second difference, the Right Ascension would be $18^h 10^m 32^s \cdot 66$.

2. *For the Declination.* The Declination on January 4, is $S. 24^\circ 14' 57'' \cdot 0$, and on Jan. 5, it is $S. 24^\circ 19' 14'' \cdot 3$, the difference, $4' 17'' \cdot 3$, is the variation in 24 hours ; and the proportional part of this variation for 8^h is $1' 25'' \cdot 8$, which, *added* to the Declination at Jan. 4, 0^h or *noon*, gives $S. 24^\circ 16' 22'' \cdot 8$ for the Declination required ; the effect of second difference would be to increase this quantity by $8'' \cdot 5$.

3. *For the Meridian Passage.* Take the difference of the times of two consecutive transits ; and considering this difference as an acceleration or retardation of the Meridian Passage while the planet has passed over 24^h of geographical longitude, take the proportional part of it, due to the difference of meridians, for a correction to be applied to the Meridian Passage at Greenwich, bearing in mind that in east longitude the passage precedes that at Greenwich, when times are accelerated, and follows it, when they are retarded ; and the contrary in west longitude. In the present case Mercury passes the meridian of Greenwich at January 4, $23^h 17^m \cdot 5$, and again at Jan. 5, $23^h 20^m \cdot 3$, the difference is $2^m \cdot 8$, therefore $24^h : 2^m \cdot 8 :: 2^h : 0^m \cdot 2$, the proportional part to be *added* to $23^h 17^m \cdot 5$, (because the passages are accelerated, and the longitude is west of Greenwich,) which

gives January 4, $23^h 17^m \cdot 7$, mean astronomical time, or January 5th $11^h 17^m \cdot 7$ A.M. civil time at the given place, for the Meridian Passage. Where great accuracy is not required this method will suffice.

Parallaxes and Semidiameters. (Pages 301 and 302).

These pages contain the Equatorial Parallaxes and Semidiameters of Mercury, Venus, Mars, Jupiter, Saturn, and Uranus, for each 5th day of the year, with the factor for determining the Polar Semidiameter in the cases of Jupiter and Saturn.

Planetary Ephemerides at Transit. (Pages 303 to 325.)

These pages contain the Right Ascension and Declination at Transit over the Meridian at Greenwich, within the limits stated in the Preface to the Nautical Almanac for the Year 1861, and are readily reduced (approximately) to the time of transit over any other meridian by means of their Variations in 1 hour of Longitude. These variations apply to the time of transit over the meridian of Greenwich, and therefore require to be reduced to the longitude midway between Greenwich and the place at which the Right Ascension or Declination is required. As they are given at intervals of two transits, or 48 hours of longitude, proceed thus:—If the long. is *East* take the diff. between the given and *preceding* variation—if *West*, between the given and *following* one; in either case say, as 48^h is to the diff. of variation, so is *half* the longitude in time to the correction required. For the intermediate day add 24^h to *half* the longitude in time. Then prefix the sign — to the Longitude of the proposed meridian if it be east of Greenwich, but + if it be west, and multiply it by the corrected variation; the product applied *algebraically* (South Declination being considered as negative) to the transit results for Greenwich, will give those for the proposed meridian. *Example:* Suppose the Right Ascension and Declination of Mercury were required in longitude 60° or 4^h east, on March 13, 1868. The Right Ascension on March 13 (page 304) is $22^h 52^m 0^s \cdot 75$ and its “Var. in 1 hour of Long.” — $5^s \cdot 91$, which corrected as above is — $5^s \cdot 97$: the product of — $5^s \cdot 97$ and — 4^h is + $23^s \cdot 88$, which, applied to $22^h 52^m 0^s \cdot 75$, the Transit Right Ascension at Greenwich, gives $22^h 52^m 24^s \cdot 63$ for that at the place. The Declination on March 13 is S. or — $4^\circ 22' 29'' \cdot 6$, and its variation — $72'' \cdot 3$, which corrected as above is — $72'' \cdot 5$, and the product of — $72'' \cdot 5$, and — 4^h is + $4' 50'' \cdot 0$, which applied to S. or — $4^\circ 22' 29'' \cdot 6$, gives S. $4^\circ 17' 39'' \cdot 6$ for the Declination at the place. Had the day been March 12, the corrected variation of the Right Ascension would have been — $6^s \cdot 71$, and that of the Declination, — $74'' \cdot 4$.

The “Sid. Time of Sem. pass. Mer.” (Sidereal Time of the Semidiameter passing the Meridian,) serves to reduce an observation of the Right Ascension of the limb, to that of the centre, and the “Semidiameter” answers a similar purpose for the Declination.

The “Hor. Par.,” or Horizontal Parallax, serves for reducing an observation made at the surface to the centre of the Earth.

Fixed Stars. (Pages 326 to 389.)

In pages 326 to 328 are given the Mean Right Ascensions and Declinations of 147 fixed Stars for Jan. $0 + 0^d \cdot 565$, 1868, together with their Annual Variations.

North Declination is distinguished by N., and South Declination by S.

The sign + prefixed to an Annual Variation of Right Ascension indicates that the variation is to be *added to*, and the sign —, that it is to be *subtracted from*, the Right Ascension: also, for Stars having *North* Declination, + signifies *add*, and

— *subtract*: but for Stars of *South* Declination, + denotes that the Variation is to be *subtracted from*, and — that it is to be *added to*, the Declination.

Example 1. Required the Mean Right Ascension and Declination of α Tauri or Aldebaran on May 30, 1868. The Annual Variation of the Right Ascension is $+3^{\circ}43'51''$; the Fraction of the year corresponding to May 30, is $\cdot4107 + \cdot0012 = \cdot4119$ (page XX. of May); the product of these numbers ($1^{\circ}415'$) is the proportional part of the annual variation due to the period elapsed since January $0^{\circ}0^{\circ}56'5''$, which *added*, because the sign is +, to the Mean Right Ascension on Jan. $0^{\circ}0^{\circ}56'5''$, viz., $4^{\text{h}}28^{\text{m}}20^{\text{s}}9\cdot11$, gives $4^{\text{h}}28^{\text{m}}22^{\text{s}}32\cdot6$, for the Mean Right Ascension on May 30. The Annual Variation of the Declination is $+7^{\circ}63'1''$, which, multiplied by $\cdot4119$ as before, and the product ($3^{\circ}14'$) *added*, because the sign is + and the Declination *North*, to the Mean Declination on Jan. $0^{\circ}0^{\circ}56'5''$ viz., N. $16^{\circ}14'28^{\circ}88$, gives N. $16^{\circ}14'32^{\circ}02$, for the Mean Declination required.

Example 2. Required the Mean Right Ascension and Declination of β Ursæ Minoris on June 2, 1868. Here the Annual Variation of Right Ascension is $-0^{\circ}25'09''$, and the fraction of the Year $\cdot4189 + \cdot0012 = \cdot4201$ (page XX. of June); the product ($0^{\circ}105'$) therefore being *subtracted*, because the sign of the Annual Variation is —, from $14^{\text{h}}51^{\text{m}}7^{\text{s}}35\cdot8$, the Right Ascension on Jan. $0^{\circ}0^{\circ}56'5''$, gives $14^{\text{h}}51^{\text{m}}7^{\text{s}}25\cdot3$, for the Right Ascension on June 2, 1868.

For the Declination, we have the Annual Variation = $-14^{\circ}7'56''$, which, multiplied by $\cdot4201$, gives $6^{\circ}20'$. The Declination being *North*, and the sign of the Variation —, this product must be *subtracted* from N. $74^{\circ}41'40^{\circ}75$, and the result is N. $74^{\circ}41'34^{\circ}55$.

Example 3. Required the Mean Declination of α Scorpii or Antares on May 30, 1868. The Annual Variation is $-8^{\circ}39'7''$, and the fraction of the Year $\cdot4119$; the product of these numbers ($3^{\circ}46'$) being *added*, because the Declination is *South*, and the sign of the Variation —, to the Declination on Jan. $0^{\circ}0^{\circ}56'5''$, viz., S. $26^{\circ}8'10^{\circ}83$, the sum, S. $26^{\circ}8'14^{\circ}29$, is the Declination on May 30, 1868.

Next (page 329) follow Bessel's Formulæ of Reduction; and (pages 330 and 331) a Table for the reduction of Stars, independently of the Constants, in the Catalogue of the British Association, an example of which is given at page 525.

The apparent places of α and δ Ursæ Minoris are given for every day of the year, and those of the remaining 145 Stars for every *tenth* day.

The hours and minutes of Right Ascension, and the degrees and minutes of Declination, are placed at the heads of the columns as constants, and belong equally to all the numbers below them. This arrangement has rendered it necessary in numerous instances, to continue the seconds beyond 60, as the width of the page would not permit of otherwise indicating any change in the minutes. Thus, the apparent Right Ascension of μ Geminorum at page 349, on Oct. 17th, 1868, is registered $6^{\text{h}}14^{\text{m}}61^{\text{s}}\cdot07$, and is to be read $6^{\text{h}}15^{\text{m}}1^{\text{s}}\cdot07$. On the same day the Declination of γ Cancri (page 354) is registered N. $20^{\circ}52'62^{\circ}\cdot1$, which signifies N. $20^{\circ}53'2^{\circ}\cdot1$.

The small figures on the right hand of the vertical column of seconds represent the differences of the quantities above and below them on the left, or the variation of Right Ascension and Declination in 10 days, and serve to find, by interpolation, the

* Similar examples to these have been given in the Nautical Almanacs 1834 to 1867, but Nautical Men will find it more convenient to consult pages 332 to 387, from which the Stars' Right Ascensions and Declinations can be obtained with more accuracy by inspection. Thus, in page 345, the Right Ascension of Aldebaran on May 30, is $4^{\text{h}}28^{\text{m}}20^{\text{s}}\cdot34$, and the Declination N. $16^{\circ}14'19^{\circ}\cdot7$.

values for an intermediate day. As in the case of the Planets before explained, a Star will sometimes arrive at the meridian twice in one apparent solar day. When this occurs on one of the given dates, the Star's place is registered for each transit as at page 356, for α Leonis on Aug. 18; but in other cases the day of the month on which two transits occur is placed opposite to the interval. In these particular instances the Star passes the meridian 11 times in the 10 apparent solar days, and consequently the Right Ascension or Declination at transit on any intermediate day is to be determined by taking $\frac{1}{10}$ th part, instead of $\frac{1}{11}$ th, of the variation in the interval. Thus, at page 348, we find in the instance of ϵ Orionis the figures 13 opposite the interval between June 9 and June 19, indicating that the double transit occurs on June 13, and a difference of $0^{\circ}.11$ opposite to the interval between the seconds belonging to those dates, $\frac{1}{10}$ of which is $.010$; for the first transit on June 13, we should therefore multiply $.010$, by the days elapsed since June 9, but for the second and following transits by the days elapsed increased by 1.

When extreme accuracy is required, the apparent places of the 5 Polar Stars demand a further correction, depending on the terms which involve 2ϵ . The apparent places do not include these corrections, on account of the rapid variation of the argument, viz., about 26° in a day, but they are given in a Table at pages 388 and 389, for every degree of the Moon's Longitude, and may be readily applied, agreeably to the precept at the foot of that Table.

Formulæ for correcting for *daily* aberration are given in the Preface.

Moon-Culminating Stars. (Pages 390 to 429.)

Those Stars are denominated Moon-Culminating Stars, which being near the Moon's parallel of Declination, and not differing much from her in Right Ascension, are proper to be observed with the Moon, in order to determine differences of meridians. This is effected by comparing the differences of the observed Right Ascensions of such a Star and the Moon's bright limb at any two meridians. If the Moon had no motion, the difference of her Right Ascension from that of the Star would be constant at all meridians; but in the interval of her transit over two different meridians, her Right Ascension will have varied, and the difference between the two compared differences will exhibit the amount of this variation, which added to the differences of the meridians, shows the angle through which the westerly meridian must revolve before it comes up with the Moon; hence, and knowing the rate of her increase in Right Ascension, the difference of Longitude may be easily obtained.

For the determination of this variation, recourse has hitherto been had to actual observations made at different meridians, because any errors in the computed places of the Moon and Stars are thereby avoided: and the places were formerly given merely with the view of indicating the times when the observations were to be made. In the present list, however, the Right Ascensions are given with every possible degree of accuracy, so that they may be considered, at least approximately, in the light of corresponding observations made at Greenwich, and be taken to represent the indications of the Greenwich instruments, the same as though they had been actually observed. The traveller has thus an opportunity of rendering his observations immediately available for determining his longitude with considerable accuracy.

The Right Ascension of the Moon's bright limb and Declination of her centre, at the instant of their respective transits at Greenwich, are given for the lower as well as the upper Culmination, L. being put to denote the Lower Culmination, and U.

the Upper Culmination ; the Roman numerals indicate the limb of the Moon with reference to its transit over the meridian. The Moon's age at the time of her upper transit, to the nearest tenth of a day, is inserted in the column containing the magnitudes of the Stars.

The numbers in the column "Var. of ζ 's R.A. in one hour of Long." represent the Variation in Right Ascension of the Moon's Limb during the interval of her transit over two meridians, equidistant from that of Greenwich, and *one* hour distant from each other. They have been deduced from the Right Ascensions of the *bright limb*, and therefore include the effect produced by the change of the semidiameter.

They serve to determine the Longitude where the difference of meridians is not very great ; but where this difference is considerable, and extreme accuracy is wanted, that variation in Right Ascension should be used which corresponds to the middle of the interval between the observations, which may be readily obtained by interpolation. They also serve to determine (approximately) the Right Ascension of the bright limb at its transit over any other meridian. Thus: Multiply the difference of longitude between Greenwich and the given meridian, by the variation ; and, according as the given meridian is east or west of Greenwich, subtract or add the product to the Right Ascension at Greenwich ; the result will be the Right Ascension of the bright limb at transit over the proposed meridian. *Example*: On June 28, 1868, the Right Ascension of the Moon's first limb is $13^h 44^m 49^s \cdot 82$, at its upper transit at Greenwich, and the variation for 1 hour of longitude is $130^s \cdot 54$: Required the Right Ascension of the limb at its upper transit at Paris. Paris is $9^m 20^s \cdot 6$, or $0^h 15^m 6^s$, East of Greenwich ; therefore, multiplying $130^s \cdot 54$ by $0 \cdot 156$, and subtracting the product, $20^s \cdot 36$ from $13^h 44^m 49^s \cdot 82$, we have $13^h 44^m 29^s \cdot 46$, for the Right Ascension at Paris.

In a similar manner the Declination may be determined (approximately) at transit over any other meridian not far distant from that of Greenwich, bearing in mind that South Declinations and East Longitudes are to be considered as *negative*. Thus, in the above *Example*: The Moon's Declination at her upper Transit at Greenwich is $S. 6^\circ 12' 32'' \cdot 1$ and the "Var. of ζ 's Dec. in 1 hour of Long." is $-645'' \cdot 0$, which, multiplied by $-0^h 15^m 6^s$, gives $+1' 40'' \cdot 6$, to be applied to S. or $-6^\circ 12' 32'' \cdot 1$; the Declination at the upper transit at Paris is therefore $S. 6^\circ 10' 51'' \cdot 5$.

Where an asterisk is placed opposite to a Star's name, it is intended to denote that the Star is favourably situated for observing its Declination along with that of the Moon in both Hemispheres, with a view to the accurate determination of the Moon's Parallax.

The numbers in the column entitled "Sid. Time of ζ 's Sem. pass. mer.," express the Sidereal intervals which the Moon's Semidiameter, at the time of transit at Greenwich, takes in passing the meridian, and therefore serve to determine the Transit of the centre from an observed Transit of either limb.

Eclipses. (Pages 430 to 435.)

These pages contain all the particulars necessary for indicating the times, places, &c. on the Earth where the Eclipses of the Sun will be visible ; also the Elements which have been used in the calculations.

Transit of Mercury over the Sun's Disc. (Page 436.)

This page contains the times of external contact at ingress and egress as referred to the centre of the Earth, with equations for reduction to the surface.

*Elements of Occultations.** (Pages 437 to 447.)

These are:—1. The *Apparent* places at Greenwich Mean Midnight, of the Fixed Stars to the sixth magnitude inclusive, the occultations of which will take place above the horizon at Greenwich.

2. The *Apparent* Places of those Planets and *all* Stars to the fifth magnitude inclusive, the occultations of which will be visible at *some* part of the Earth.

3. The Greenwich Mean Time at which the Moon would, if viewed from the centre of the Earth, appear to have the same Right Ascension as the Star.

4. The difference of Declination and Position of the Moon, as it would appear with respect to the Star at the instant of conjunction in Right Ascension.

5. The parallels of Latitude *beyond* which the Star cannot be occulted by the Moon.

These Elements are useful in the calculation of an Occultation; for being referable to the Moon and Star, as seen from the centre of the Earth, they are independent of geographical position, and serve equally for all places. It is only necessary to apply the difference of longitude from Greenwich to the Greenwich Mean Time of conjunction, to find the time of conjunction at any other meridian; and it is this time to which the positions of the Moon and Star here given will equally correspond.

Thus, the position of the Moon and α Tauri for 1868, Sept. 8, $17^h 14^m 36^s$, Mean Time at Greenwich, is the position at $17^h 23^m 56^s \cdot 6$ Mean Time at Paris, because Paris is $9^m 20^s \cdot 6$ east of Greenwich.

By Limiting Parallels are to be understood those parallels of latitude beyond which an occultation cannot *possibly* occur.

Suppose an observer situate at a star, and having the Moon between him and the Earth, and that he could see the Moon projected on the Earth's disc; he would observe it moving across the disc from west to east, covering a zone whose breadth would be equal to the apparent diameter of the Moon. Now it is only within the limits of this zone that the Occultation of a Star by the Moon can take place. To all the places through which the boundary lines pass, the Star will appear just to touch the Moon's limb; and that projected parallel of latitude, to which one of the boundary lines is a tangent, is one of the limiting parallels, while the intersection of the other boundary line with the circumference of the Earth's disc determines the other limiting parallel.

Limiting Parallels are useful to indicate whether at a given conjunction of a Star with the Moon, the positions are likely to produce an occultation in a given latitude, and thus to save considerable labour to the computer.

Thus, suppose from the times of conjunction commencing at June 25, $9^h 10^m 57^s$, page 442, it were required to prepare a list of Occultations for Greenwich, whose latitude is $51^\circ 28' 38''$ N. On looking down the column of Limiting

* The calculation of the circumstances of an Occultation for any particular place may be made in the manner directed by Mr. WOOLHOUSE in the Appendix to the *Nautical Almanac* for 1836; or approximately, with sufficient accuracy to suit the ordinary purposes of prediction, by Captain SHADWELL'S "Tables for facilitating the approximate prediction of Occultations and Eclipses for any particular place." Potter: Foultry, London.

Parallels we reject at once the first star, because the Limiting Parallels do not comprise the parallel of Greenwich. On June 26, we see that γ Virginis may be occulted to all the parallels of latitude between 79 N. and 1 S., which include that of Greenwich; this Star would therefore be fixed upon for calculation if no other considerations existed to cause its rejection. We observe, however, that the conjunction takes place at $21^h 52^m 1^s$, the intensity of sun-light would therefore prevent its being seen, and it would be rejected in consequence. The next Limiting Parallels having Greenwich between them, and the time of conjunction favourable as regards sun-light, are 87 N. and 18 N., opposite 48 Virginis on June 27, and on reference to page 449, it will be seen that the phenomenon is visible at Greenwich.

Occultations. (Pages 448 to 451.)

These pages contain a list of the Planets and fixed Stars to the sixth magnitude inclusive, the Occultations of which by the Moon will happen when the objects are above the horizon of Greenwich, together with the Sidereal and Mean Times of the Disappearance and Reappearance, and the points on the circumference of the Moon's image, where the Star, viewed with a telescope that inverts, will disappear and reappear. By "Angle from N. Point" is to be understood the arc included between the Star, when in contact, and the point of intersection of the limb with a circle passing through the North Pole and the centre of the Moon's image; and by "Angle from Vertex," the arc between the Star at contact, and the point where a circle, passing through the zenith and the Moon's centre, intersects the limb. These latter angles will be found very useful in observing Occultations of small stars with a telescope not mounted equatorially; and, for the observation of a reappearance, a knowledge of the angle is absolutely necessary to enable the observer to direct his attention to the point of the Moon's limb where the Star will reappear. In some instances, Occultations have been inserted, which taking place in, or near to, the horizon of Greenwich, are not visible there, but may be visible at places not far distant from Greenwich.

Jupiter's Satellites, Eclipses, &c. (Pages 452 to 471.)

These pages contain the Mean Times of the Eclipses, Occultations, Transits, and Transits of Shadows, of the Satellites of Jupiter, together with diagrams exhibiting the position of each Satellite with respect to the disc of the Planet at the moment of Disappearance or Reappearance, as it will appear in an inverting telescope. These diagrams have been laid down from calculations made for the eclipse nearest to the middle of each month; but they will serve very well for the whole of the month, *except near opposition*, the change in the position of Jupiter and his Shadow in the interval being too small to be appreciable by the eye, as is evident by comparing the Phases for any two successive months. All the Eclipses which happen when Jupiter is 8° above and the Sun 8° below the horizon of Greenwich, are marked with an asterisk to indicate that they are visible at that place; and those which happen when Jupiter is above, and the Sun below the horizon, are marked with a dagger, as, under very favourable circumstances, they may also be observed.

"D." denotes the instant of the disappearance of the Satellite, by entering into the shadow of Jupiter; and "R." the instant of its reappearance at coming out of the shadow. They generally happen when the Satellite is apparently at some distance from the body of Jupiter, except near the opposition of Jupiter to the Sun, when the eclipse takes place near to the body of the planet. Before the opposition,

the Disappearances and Reappearances happen on the Western side, but after opposition on the Eastern side, of the planet: with an inverting telescope, however, the appearances will be directly the contrary. Before the opposition, the Disappearances only of the first Satellite are visible: and after the opposition, the Reappearances only. It is seldom, also, that the Disappearance and Reappearance of the second Satellite can be observed at the same eclipse; but both phenomena are generally visible with the third and fourth Satellites.

To find the time at which the Disappearance or Reappearance of any of the Satellites will take place under any other meridian than that of Greenwich, it is merely necessary to *add* the difference of longitude (*in time*) to the time of the phenomenon at Greenwich, if the meridian be *east* of Greenwich, or to *subtract* if it be *west*, and the sum or difference will be the time required. But this determines only the instant of the occurrence of the phenomenon: Jupiter may be below the horizon at this time, or he may be above it, and the intensity of sun-light, or even the brightness of twilight, may be such as to render the Satellites invisible: it is therefore necessary to ascertain the position of the Sun and Jupiter, with respect to the horizon, at the time of the phenomenon: this may be readily accomplished by means of a celestial globe, or near enough for the purpose, by finding the times of rising and setting of the objects, with the assistance of a table of semidiurnal arcs.

The Eclipses of Jupiter's Satellites, especially of the first, afford us, perhaps, the readiest means of determining the longitude; all that is necessary to be known being the exact time of observation: the difference between this time and the time at Greenwich, shows the difference of longitude at once, and it is *east* or *west* of Greenwich, according as the time of observation is *greater* or *less* than the Greenwich time.

Suppose, in the year 1868, the Disappearance of Jupiter's first Satellite to be observed at Paris at June 30, $14^h 6^m 55^s.2$ Mean Time at that place: by reference to page 460, it appears that the Disappearance will take place at Greenwich at $13^h 57^m 34^s.6$ Greenwich Mean Time; the difference $9^m 20^s.6$, is the difference of longitude between Greenwich and Paris; and because the Paris time is greater than that at Greenwich, we infer that Paris is to the east of Greenwich.

Independent of defects in the tables, there are difficulties attending the observation of these phenomena which unfit them for *accurate* determinations of longitude. Different telescopes give different results; and care should be taken to have recourse to those corresponding observations which have been made under circumstances the most similar, and particularly with telescopes of the same quality and power. When extreme accuracy is not required, the Eclipses of the Satellites will always afford a good approximation towards the difference of meridians, and observations of them should on no account be neglected, especially when the Disappearance and Reappearance of the same Satellite are both visible.

The times of Occultation and Transit, are only approximate. They are inserted in order to apprise Astronomers when they are about to happen, as observations of them may tend to improve the Tables of the Satellites. The instruments required to observe them with anything like precision will preclude the possibility of their ever becoming available at sea.

An asterisk signifies that the phenomenon is visible at Greenwich, and a dagger that the phenomenon *may be* visible under favourable circumstances, the limits in

either case being the same as those adopted for the eclipses. "D." denotes the disappearance of the Satellite behind the disc of Jupiter, and "R." its reappearance; "I." signifies the ingress, or beginning of a transit of a Satellite, or its shadow, across the disc of Jupiter, and "E." the egress, or termination.

Jupiter's Satellites, Configurations (Pages 472 to 482).

In addition to the explanation given at the foot of the page, it may be remarked that when two Satellites are in or near conjunction, instead of the usual symbol (\odot), it has been thought better to place one above the other, without regard to their actual latitudes, but merely to distinguish them in their relation of *upper* and *lower*.

The Satellites are in the superior parts of their orbits, or have Jupiter between them and the Earth, when they are moving from West to East, or towards the right-hand of the page; but they are in the inferior parts of their orbits, or between the Earth and Jupiter, when they are moving from East to West, or towards the left-hand: in the former case Eclipses and Occultations occur, and in the latter Transits of the Satellites and their Shadows.

If an inverting telescope be directed towards Jupiter on April 1, at 16^h 30^m mean time, the Satellites will appear to an observer at Greenwich in the positions as laid down in the table. The 1st and 2nd Satellites, which are *really* to the left of the planet, will appear to the right of it; and the 3rd and 4th, which are *really* to the right, will appear to be to the left.

West and *East*, at the head of the page, are inserted to show the positions of the Satellites with respect to Jupiter, as they would appear in a telescope that does *not* invert. Jupiter being always to the south of the zenith of Greenwich, the Satellites which are here laid down on the left of Jupiter would appear to the *West*, and those on the right-hand to the *East* of the planet.

As regards their positions to the east or west, the page viewed directly, exhibits the Satellites in an inverted order; but if the leaf be turned over, and the page viewed from the other side, they will appear in their real positions. The simplest mode of changing the position of a Satellite from apparent to real, and *vice versa*, is to draw a line from the Satellite through Jupiter's centre, and to place the Satellite upon this line at the same distance from the centre as before, only on the opposite side. If this operation be performed upon the Configurations as laid down in this volume, the Satellites will be reduced to their real positions.

As the Configurations are given for *mean astronomical time*, which agrees with *civil time* only from 0^h to 12^h, or from noon to midnight, when the time exceeds 12^h the excess will indicate the civil time of the succeeding day of the month.

Thus in April, 1868, the Configurations are given for 16^h 30^m mean time, but the 16th hour from noon is the same as the 4th hour from the following midnight, when a new civil day has commenced. The appearances, therefore, relate to 4^h 30^m A.M. of the day following, according to the common mode of reckoning time; that is, the Configurations for April 26, 16^h 30^m relate to 4^h 30^m A.M. on April the 27th.

The Configurations enable an observer to distinguish the Satellites from each other, and from Stars in the vicinity of Jupiter.

Phenomena. (Pages 483 to 486.)

In these are given the conjunctions in Right Ascension of the Planets with the Moon and with each other, and the conjunctions in Right Ascension and Declination of the Planets with certain Stars; also the times when the Planets are in those parts of their orbits most favourable for observation, with a view to the more accurate determination of their elements; and other notices, chiefly of use to the astronomer.

Saturn's Ring. (Page 487.)

In this page are given the quantities which enable us to determine the position of the Ring of Saturn at intervals of 20 days throughout the year, and whether it be visible or not. The value of p shows the position of the minor axis of the Ring with respect to a circle of declination, those of a', b', a'', b'' , the Ring's apparent magnitude, and a comparison of those of l and l' , its visibility or otherwise. For the plane of the Ring to be *visible*, it is necessary that the Sun and the Earth should be elevated on the same side of it, which is the case throughout the year 1868. The circumstances which determine the *invisibility* of the Ring are, 1st, when its plane passes through the centre of the Sun, or $l' = 0$; 2nd, when it passes through the centre of the Earth, or $l = 0$, and at this time b' and b'' , also $= 0$; 3rd, when the Sun and Earth are on different sides of the plane of the Ring, for the Earth in this case will have the unilluminated side of the Ring turned towards it.

Moon's Libration, &c. (Pages 488 and 489.)

Page 488 contains the *Approximate Mean Time of the greatest Libration of the Moon's Apparent Disc*; and the *Illuminated portion of the Discs of Venus and Mars* at the middle of each month, and page 489, data for facilitating the computation of the *Libration in Longitude and Latitude* at any time required. See PREFACE, page x.

Tides. (Pages 490 to 493.)

The Mean Time of High Water at London Bridge is here given for every day of the year, on the assumption that the time of high water on full and change days, or the *Establishment of the Port*, is $2^h 7^m$. The first high tide which happens after Mean Noon of any day is inserted in the 1st column, and the second in the 2nd column. Where a line (—) is inserted, it indicates that there is only one high tide on that day. Thus on January 20th there is only one high tide; it occurs at $11^h 29^m$, but the succeeding high tide does not take place until 1^m after mean noon of January 21st.

The times of high water at full and change of the Moon, as given at pages 492 and 493, are reckoned from *Apparent Noon*: they represent the *Establishments of the Ports*, that is, the *actual times of High Water when the Moon passes the meridian at the same time as the Sun*; or the *intervals between the times of Transit of the Moon and the times of High Water on full and change days*. They serve to determine the time of high water on any other day at those places in the usual manner.

This Table is occasionally revised by the Admiralty Hydrographic Office.

Tables. (Pages 494 to 510.)

In page 494 is given a Table showing the Correction required on account of Second Differences in finding the Greenwich Time corresponding to a reduced

Lunar Distance—the use of this Table has been sufficiently explained, by the Examples given at pages 521 and 522.

Pages 495 and 496 contain a Table of three quantities used in computing the Moon's Libration. See PREFACE, page x.

In pages 497 to 499 are given Tables for determining the Latitude by Observations of the Pole Star out of the Meridian. The method of using them is as follows:

From the observed altitude, when corrected for the error of the instrument, refraction, and dip of the horizon, subtract 1'.

Reduce the Mean Time of Observation at the place to the corresponding Sidereal Time, by the Table given at page 500.—(See *Tables of Time Equivalents*, following this article.)

With the Sidereal Time found, take out the *first correction*, with its proper sign. If the sign be +, the correction must be *added* to the reduced altitude; but if it be —, it must be *subtracted*; in either case the result will give an Approximate Latitude.

With the Altitude and Sidereal Time of observation, take out the *second correction*; and with the day of the month and the same Sidereal time, take out the *third correction*. These two corrections *added* to the Approximate Latitude, will give the Latitude of the place.

Example. On March 6th, 1868, in Longitude 37° W. at $7^{\text{h}} 43^{\text{m}} 35^{\text{s}}$ P.M. Mean civil Time, suppose the altitude of the Pole Star, when corrected for the error of the instrument, refraction, and dip of the horizon, to be $46^{\circ} 17' 28''$: Required the latitude.

Mean Time	- - - - -	^h 7 ^m 43 ^s 35
Diff. Long. (37°) in time	- - - - -	2 28 0
Greenwich Mean Time	- - - - -	<u>10 11 35</u>
Sidereal Time at Greenwich Mean Noon	-	^h 22 ^m 57 ^s 59
Mean Time at Place	- - - - -	7 43 35
Acceleration (Tab. page 500) for $10^{\text{h}} 12^{\text{m}}$	-	<u>1 41</u>
Sidereal Time of Observation	- - - - -	<u>6 43 15</u>
Corrected Altitude	- - - - -	[°] 46 ['] 17 ["] 28
Subtract	- - - - -	<u>1 0</u>
Reduced Altitude	- - - - -	46 16 28
With Argument $6^{\text{h}} 43^{\text{m}} 15^{\text{s}}$, First Correction—	-	<u>0 9 47</u>
Approximate Latitude	- - - - -	46 6 41
Arguments, $46^{\circ} 17'$ $6^{\text{h}} 43^{\text{m}}$ } Second Correction	-	+1 3
Arguments, March 6, 1868. $6^{\text{h}} 43^{\text{m}}$ } Third Correction	-	<u>+0 58</u>
Latitude of the place	- - - N.	<u>46 8 42</u>

The *Tables of Time Equivalents*, given at pages 500 to 503, are useful for converting Mean Time into Sidereal Time, and Sidereal into Mean Time, agreeably to the example annexed to each table. They will serve also for Tables of Acceleration and Retardation, by taking the difference between each argument and its equivalent. Thus, in the Table at pages 500 and 501, the *excess* of the sidereal time equivalents above the arguments of mean time shows the *acceleration* of sidereal on mean solar intervals; and in the Table at pages 502 and 503, the *defect* of the mean time equivalents, as compared with the arguments of sidereal time, indicates the *retardation* of mean on sidereal intervals.

The concluding Table, at pages 504 to 510, contains a revised list of the *Latitudes and Longitudes of the principal Public and Private Observatories*.

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